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A
GUIDE
FOR
Young Shepherds ;

OR

FACTS AND OBSERVATIONS ON THE CHARACTER
AND VALUE OF

MERINO SHEEP:

WITH RULES AND PRECEPTS FOR THEIR
MANAGEMENT, AND THE TREATMENT
OF THEIR DISEASES,

As well as of

SHEEP IN GENERAL.

COLLECTED

FROM THE LATEST AND BEST WRITERS ON THESE
SUBJECTS, AND CONFIRMED BY THE
EXPERIENCE OF THE AUTHOR
AND HIS FRIENDS.

BY SAMUEL BARD, M. D.

NEW-YORK:

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1811.

District of New-York, ss.

(L. S.) **BE IT REMEMBERED** that on the twentieth day of May, in the thirty-fifth year of the Independence of the United States of America, COLLINS & Co. of the said District, have deposited in this office the title of a book, the right whereof they claim as proprietors, in the words and figures following, to wit: "*A Guide for Young Shepherds; or Facts and Observations on the Character and Value of Merino Sheep: with Rules and Precepts for their Management, and the Treatment of their Diseases, as well as of Sheep in General. Collected from the latest and best writers on these subjects, and confirmed by the experience of the author and his friends. By Samuel Bard, M. D.*"

IN CONFORMITY to the Act of the Congress of the United States, entitled "An Act for the Encouragement of Learning, by securing the copies of Maps, Charts, and Books to the authors and proprietors of such copies, during the time therein mentioned." And also to an Act, entitled "An Act, supplementary to an Act, entitled an Act for the Encouragement of Learning, by securing the copies of Maps, Charts and Books to the authors and proprietors of such copies, during the times therein mentioned, and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

CHARLES CLINTON,
Clerk of the District of New-York.

INTRODUCTION.

THE Merino sheep furnishes the wool from which all the superfine cloths of Europe are made; and without which, cloths equally fine, supple, and elastic cannot be made. This fact sufficiently establishes the great value and importance of this animal, and renders it a very desirable object to every country, in which he will thrive, to procure and rear him. But until the present revolution in Spain, all other countries have been in a great measure, and until the beginning of the last century were wholly dependant on that country for this necessary article, arising from an opinion that the fineness of the Merino fleece, and the softness and elasticity of the wool depended on the soil, climate, and pasturage of Spain, and the journies he was there compelled to take twice a year in search of food.

This opinion was first put to the test of experiment in Sweden in the year 1723; in the years 1765 and 1768 Saxony followed her example, and since that period, Merinos have been introduced into Prussia, Austria, many of the German States, France, Switzerland, Italy, and Eng-

land, and with such success as to prove beyond all controversy that in all these countries Merino sheep will not only thrive and increase, but that with common care and proper management, the animal will be greatly improved in his size and shape ; whilst at the same time, in the progress of near a century, even in the inhospitable climate of Sweden, his wool has lost nothing of its peculiar qualities and superior excellence.

Lastly, our own country has made the experiment, and from the patriotic exertions of Chancellor Livingston and Col. Humphreys, we have now for more than eight years had an opportunity of becoming acquainted with this most valuable animal, of proving that he will thrive with us as well as in any other country, and of learning the necessary means of his preservation and improvement ; just in time to participate in the opportunity which the present war in Spain and Portugal has afforded to procure an ample supply from the best flocks in Spain. The spirited enterprize of our merchants has not suffered the occasion to pass by ; and we now possess a sufficient number of Merino sheep, from the best flocks, to render us, in no great length of time, not only independent of all other countries for so necessary an article of our clothing, but probably, to become exporters of fine wool to other countries.

Upon so interesting a subject, every step we advance is of great consequence ; although there-

fore much has been already written, and we possess many excellent works of the English and French agriculturalists upon it, and one in particular from the accurate pen of Chancellor Livingston, I have likewise ventured to add my mite, and to suppose that, by collecting and arranging in a lucid order the facts and observations which are to be found dispersed in the several works I have met with, so as to form the whole into something like a methodical system for the management of sheep in general, and of Merinos in particular, a treatise might be formed interesting to the public, and particularly useful to many individuals, who, with little knowledge of the subject, are desirous of entering into so promising a speculation: especially at this moment, when great numbers of Merino sheep have just arrived among us, and when many of our enterprising young men are turning their thoughts from the envious competition of professional pursuits, from the hazardous speculations of the counting-house, and from the enervating dissipation of a city life, to the calm, safe, healthy, and delightful occupations of rural employments.

Such are the pretensions of this little work, and although the writer does not pretend to so much experience as to say he has tested every fact and observation which he has produced, or even every rule which he has laid down, yet they

all stand on good authority, and after several years careful practice, he may probably be allowed to form no inadequate judgment of their truth and usefulness.

CHAPTER I.

Of the Characters and Qualities of the Merino, as it respects size—Shape—Fleece—Disposition to fatten—Constitution—Temper—Longevity—Different flocks—and of the effects and emolument of the cross with common sheep.

Character of the Merino.

BESIDES the excellence of his wool, the Merino possesses many qualities which recommend him to the attention of the farmer. In size, he is rather a small sheep, as all fine and short-woolled sheep are; but this, so far from being a defect, is one circumstance which should particularly recommend him to the farmers of the middle districts of this country, whose pastures in general are better calculated for small animals of every description than for the large-boned, heavy breeds, which have nothing to recommend them but size and strength, and which will starve on feed that will not only support to advantage less animals, but which will actually make a return of more, as well as better wool and mutton per acre from small sheep, than stronger land will give from such as are very large. Of this assertion, no better proof can be given than a fact stated by Lord Somerville, who, when he first entered on the breed of small, short-woolled sheep, had been

for twelve preceding years, raising a large long-woolled breed, with a mixture of Bakewell's celebrated New Leicester. He describes his farm, situate in the vale of Taunton, one of the most fertile spots in the kingdom ; yet he found these large sheep depreciate in size at the rate of near five pounds per quarter in every four years. Upon making the change, he at once put 150 Ryelands, a small close-woolled sheep, upon the same land which had carried only 45 of the large breed ; and notwithstanding a severe winter, the ewes maintained themselves tolerably well, and the lambs, at weaning time, were in the best order.

The Merino is a hearty feeder, and not delicate in the choice of his food, but will feed on a greater variety of plants than most other sheep, and keep himself in good condition on moderate pasture. From this circumstance, connected with his disposition to fatten at an early age, very considerable profits may be derived from wethers by keeping them as a dry flock, until they are three years of age. The shape of the Merino is that point, which, in the eye of an English farmer, or of those who have formed their opinion in imitation of his, is most objected to. His throat is thick, and incumbered with a loose pendulous skin, or dewlap, accompanied by a corresponding hollow in his neck, nor in general among those imported, do we find that strait back, round shoulder, broad hip and loin, and full ham which

most recommend sheep to the grazier and butcher; yet his defects in these respects are to be attributed rather to neglect in breeding, and hard usage, than to natural constitution; as among them many well-shaped animals are to be found, and by judicious selection in breeding, good keep, and comfortable shelter, all may be so far improved as to satisfy the most prejudiced eye. This is an observation made in every country into which he has been introduced, but has been most particularly exemplified in the French national flock at Rambouillet, by some gentlemen in England, particularly by Lord Somerville; and by Chancellor Livingston in this country, whose sheep from the Rambouillet flock, have increased considerably in size under his judicious and careful management, whilst at the same time they have preserved the fineness and other qualities of the wool unimpaired.

I have ventured to assert that the wool of the Merino is that, without which the superfine cloths of Europe cannot be made. It is known, however, that other animals as well as some breeds of sheep, such as those of Shetland, Iceland, and Cashmere, carry finer wool than the Merino, but the fine wool of the two first exists but in small proportion to the whole fleece, and is so mixed with coarse long hair, as to unfit it for any considerable manufacture; we know too little of the Cashmere sheep to say how far they may rival the

Merino, whose fleece is not only remarkably fine, but the fine wool is more equally spread over his whole frame ; and the weight of the fleece is greater in proportion to his size than that of any breed known ; his forehead, cheeks, belly, and in general, though not universally, his legs, down to his very hoofs are covered with wool.

Mr. Laysterie informs us, that in the year 1801, the Rambouillet flock yielded on an average 7 lbs. 8 oz. of unwashed wool ; that some animals yielded 12 lbs. and one in particular 16 lbs. of wool unwashed, and that he had seen in Sweden rams that yielded 13 lbs. But we know that this wool will lose from one half to three quarters before it is fit for the manufacturer. Sir Joseph Banks informs us that the average weight of the fleeces of the ewes and wethers of the King of England's flock, in the year 1799, was but little more than 3 lbs. 3 oz. after being washed on the sheep's back, and that this wool suffered a farther loss of near one fourth by being properly scoured ; so that the average of perfectly clean wool was not more than $2\frac{1}{2}$ lbs. In speaking, therefore, of the weight of the fleece, we must not only be careful to distinguish between washed and unwashed wool, but we must likewise remember that a great difference exists between wool fit for the manufacturer and that which by a slight washing is freed only from some of the superficial dirt on the surface of the fleece, whilst much of the yolk is still left in it.

The *yolk* is a greasy secretion from the skin, which, although occasionally found in other breeds of sheep, especially when fat, always abounds so considerably in the Merino as to be in some measure characteristic of the species. It is this substance which gives the peculiar softness to his wool, which greatly improves its fulling and felting qualities, and which, like all other wholesome secretions, is a sure mark of the health of the animal ; so much so, that we are assured by all who have had any experience on the subject, that wherever the yolk is found to rise freely, we may conclude the animal will thrive. It is from the abundance and greasy nature of this secretion in the Merino, that the surface of the best fleeces assumes a blackish, or dark brown appearance ; the yolk mixing with, and retaining the dust and soil, forms with it a crust, which, at the same time that it gives a dirty appearance to the animal, contributes to defend it from the ill effects of heat, as well as cold and wet. Another and most singular property of the Merino is, that he does not shed his wool annually, as is supposed to be the case with all other sheep. Mr. Laysterie informs us, that in the year 1797, a ewe of Rambouillet was left unshorn, and that the next year, 1798, her fleece unwashed, weighed 14 lbs. 10 oz. the filaments twice the usual length : that another, first shorn at the age of 30 months, yielded 21 lbs. 8 inches long ; although she was 5 months

of that period with lamb : and that in the year 1800, 8 ewes yielded fleeces of two years' growth, weighing from 16 to 20 lbs. each, of double the length of staple, and of equal fineness with those shorn annually. We are not informed that any particular advantage has been derived from this singular property ; but it is very probable that it will not be long before some new and beautiful fabric will originate from it. The fibres of the wool are remarkably waved, or curled, approaching in some measure to the form of a cork-screw, so that when drawn out, they will stretch to near double the length that the wool stands on the sheep's back. This circumstance occasions the pile to stand erect and perpendicular to the part of the skin to which it is attached ; and with the crust of dirt and yolk, gives a peculiar firmness to the feel, resisting the pressure of the hand like a soft brush, which is considered a proof of the greater closeness and fineness of the fleece. On opening the fleece, the wool beneath appears very thick, greasy, and tinged of a brilliant yellowish hue, by the yolk, but when this is washed out it leaves the wool of a *beautiful whiteness*. The skin beneath is of a fine rosy colour, and remarkably soft and loose, which condition of the skin strongly indicates good health, and is always connected with another excellence of this sheep, a disposition to fatten at an early age. On this point all writers agree. Lord Somerville assures us that he

has found the Merino in this respect to equal, if not exceed any short-woolled sheep in England, especially as it regards fattening at an early age ; his mixed Merinos fattening well at the age of 18 months ; a most valuable point as it respects profit, because it gives quick returns, and puts it in our power to derive a profit from the butcher and clothier from the same animal, and from the same quantity of pasture, in the same year.

In constitution, the Merino is a peculiarly hardy sheep, of which no better proof can be given than the treatment he is compelled to bear in Spain, where every spring he is driven a journey of four or five hundred miles, from the plains of the south to the mountains of the north, and back again in the autumn ; and that at the rate of 80 or 100 miles per week, and the journey in the spring, when the lambs are not above four months old. Few sheep but the Merino could bear such treatment, by which, in the opinion of the best agriculturalists, confirmed now by long experience, the form of the animal is much hurt, without any improvement to his wool ; and as Lord Somerville expresses it, he is really hunted into deformity.

He bears all climates, from New-Holland in the 34th degree of south latitude, to Sweden, in 60° north ; and in all, not only without any depreciation in the qualities of his form and fleece, but under proper management, with a manifest im-

provement to both ; and although he ought not unnecessarily to be exposed to it, he bears cold and wet better than most other sheep ; which superiority he probably owes to the closeness and oiliness of his fleece. He bears to be folded on fallow grounds with a view to their enrichment, as well, if not better than the most hardy sheep in England. But as this practice is only robbing one field to enrich another, and on the whole is rather convenient than profitable ; and as it is confessed to be always more or less injurious to the sheep ; while Merinos continue so valuable, a judicious farmer will hardly put them to such severe duty : but will be content with the manure which a well-littered winter fold will furnish, and with that constant and evident amelioration which they give to the lands on which they are pastured in the summer.

His mutton is peculiarly excellent. On this point Lord Somerville remarks, that “the quality of the flesh in each class of sheep follows the character of the wool ; that of the short-woolled sheep being close in the grain, heavy in the scale, and high flavoured ; that of long-woolled sheep more open and loose in grain, and large in size ; manufactures mutton, fit for such markets as supply shipping and collieries :” and Sir Joseph Banks states, that the London butchers who had bought some of the fatted Merinos from the King of England’s flock,

anxiously enquired for more, because the mutton was so much approved of by their best customers.

Although the rams are remarkable for courage and vigour, yet as flocks, Merinos are timid and quiet, and hence are less disposed to jump over fences or break out of enclosures. They probably owe this trait in their character to long habit, and to having been constantly kept under the care of shepherds and dogs : and it should suggest a caution to breeders not to suffer them to change this admirable habit by running with unruly sheep, and by good fences to confine them as much as possible to their own pastures. The ewes, according to an observation of Lord Somerville, and which we have likewise experienced, are occasionally barren, and more frequently bad nurses ; from inattention to their lambs, as well as from deficiency of milk. Better pastures, however, and better treatment soon conquer these defects. In the mean time, a new milch cow, or a foster mother must supply the deficiency of milk, and a few days confinement in a small pen with the lamb, frequently holding the ewe so as to let it suck, will soon make her fond of it.

They are remarkably long-lived ; and agreeably to this fact, Mr. Pictet of Geneva informs us, that Merino sheep are longer in coming to maturity than most other breeds, that they do not acquire their full growth until they are three years old ; and that they shed and renew their

teeth somewhat later than the native breeds of France. Hence the ewes in general do not so soon take ram, and the rams ought not to be put so early to the ewes. They sometimes keep their teeth until they are 14 or 15 years old ; and Mr. Pictet mentions a ewe at least 16 years old, when she had a lamb at her side. Mr. Hunt likewise mentions two, which he purchased in 1805, then without teeth, and consequently not under ten years old ; both these had lambs in 1808, and one of them in 1809 had twins : and some ewes at Rambouillet, are said to have lived to 18 years.

The last quality I shall mention of this admirable animal is, that his skin is thinner, of a finer grain, and makes better and more beautiful leather of that kind called Morocco than the skin of any other sheep.

Among the flocks of Spain are to be found a considerable variety in size, shape, quality of wool and general appearance.

Mr. Laysterie informs us, that the best breeds in Spain are those of the Escorial, the Gaudeloupe, the Paular, the Infantado, the Montano, and the Negretti ; that the Escorial breed is accounted as to fineness of wool the most perfect of all the travelling flocks in Spain ; that the Gaudeloupe sheep are remarkable for symmetry, as well as for the quantity and quality of their wool ; that the Paular are equally gifted with the

two latter perfections, but differ from the preceding in having a greater swell behind the ears, and a more evident degree of throatiness ; that their lambs, as well as those of the Infantado flock, are generally produced with a coarse hairy appearance, which is succeeded by wool of an excellent quality ; and that the Negretti flock is composed of the largest and strongest sheep in Spain. He adds, that the Paular, Negretti and Escurial, yield wool so decidedly finer than any other, that for this reason none of these piles were permitted to be exported from Spain, but the whole was retained for the royal manufactory at Guadalaxara. But, as of late years, and particularly since the present war in Spain, many of each of these flocks have been carried into France, England, and no doubt other countries besides this ; we shall soon have it in our power to judge of their piles from our own experience. In the mean time I can only add, that Sir Joseph Banks gives the preference to the wool of the Paular, and next to that of the Negretti, and adds, that his opinions were confirmed by those of the British manufacturers.

Among the great number of sheep that have lately been imported into this country, we find individuals belonging to the same flock differing greatly in the size and symmetry of the carcase, as well as in the weight and fineness of the fleece : we therefore have it now in our power to improve our flocks by judicious selection, good

keep, and proper management, in any point we wish. Where large sheep are desirable, we may increase the size, without any deterioration of the wool, as has been done at Rambouillet in France ; or where our pastures are best adapted to small sheep, we may confine our attention solely to fineness of fleece, to the equal distribution of fine wool over the carcase, and to the increase of the weight of the fleece in proportion to the size of the animal. Such is the character of the Merino, which he preserves in all its excellence, both of wool and carcase, in all the variety of climates to which he has been introduced, but which, with due attention, may be greatly improved in the quantity of wool as well as in the fineness of pile, in the size of the animal, in the symmetry and beauty of his form, and in his disposition to fatten : qualities which must surely recommend this race to every prudent and intelligent farmer. For notwithstanding the great number of Merinos which have lately been introduced into this country, the consequent fall in the price of the sheep, as well as the present glut of wool, and the low state of our manufactures ; which, for a short time may make it difficult to get rid of either to great advantage ; and which have rendered his importation an unfortunate speculation to the merchant : still it requires no great skill in arithmetic to prove that rearing Merino sheep, is the most profitable business the farmer can engage

in, especially for the gentleman farmer, who wishes to confine his attention to a single object, which he can manage with less labour, more profit, and more improvement to his soil than any other: nor any great foresight to predict that it is a growing business, which a very few years must render much more profitable than it is at present.

The Merino not only preserves his unrivalled excellence in every country to which he has been introduced, but he communicates them in a surprising degree to his descendants, of all the various breeds with which he has been crossed. Of the truth of this most important fact our own experience has been sufficient to convince us; but it has been tried with so much more precision, and established by so many and more accurate experiments of the French and English agriculturalists, that the best proofs are to be derived from them.

Mr. Laysterie observes, that the first cross improves the wool to one half of that of the ram; that the progeny gives more, as well as finer wool than the dam, and that the skin already begins to assume the rosy hue: that the second cross confirms and improves all this, and that the third and fourth crosses leave little or nothing to be desired in quantity and quality of the wool, or in similarity of form; none but a very accurate observer being able to see the difference.

Dr. Parry in England, Mr. Livingston in this country, and every other practical writer on the

subject confirm these general observations. Lord Somerville adds, that we arrive sooner or later at the fineness of the ram's fleece, according as that of the ewe is more or less fine ; that when that is close in texture, the mixed breed produces a greater quantity of wool than the dam ; and that in all cases the fourth, or at most the fifth cross, gives wool of equal fineness to that of the sire : that this great improvement will be accelerated, by choosing rams of the finest and best fleeces, never allowing them to propagate until they have arrived at their full growth, or near three years of age, by coupling them with ewes of qualities as much as possible resembling their own, by separating the strong from the weak, by giving good food, and allowing plenty of air and exercise.

Dr. Parry, of the Bath Agricultural Society, has brought his mixed flock of Merino Ryelands to so great a degree of perfection both as to shape and wool, that he has declined any farther use of the Merino ram ; which he is persuaded cannot improve his wool, and may injure the shape of his sheep. He adds, that in his Merino Ryelands, the quantity of the wool as it respects the dam, is equally increased as the quality is improved ; the Ryeland sheep yielding about 2 lbs. the Merino Ryelands of the 2d and 3d crosses yielding from $4\frac{1}{2}$ lbs. to 5 lbs. That the proportion of fine wool is more equally spread over the animal, and bears a much greater proportion to the coarse wool

than in any other native sheep, and that he has improved this point so much by judicious crossing, that the full-blooded Merino falls behind his Merino Ryelands in this respect.

The following statement by this gentleman, places the advantages of crossing Ryeland ewes with Merino rams in a very clear point of view. A Ryeland ewe weighing sixty pounds, yielded one pound and three quarters of wool, worth two shillings and four pence per pound, four shillings and one penny the fleece: a Merino Ryeland of the same weight yielded four pounds, worth two shillings and ten pence per pound, twelve shillings and nine pence the fleece: more than three times the value of its Ryeland ancestor. The difference, when compared with either of the best breeds in England was still more considerable on the same weight of carcase; the Merino Ryeland carried more than five times the value of the South Down, and five and one half times that of Bakewell's celebrated sheep of the New Leicester.

Lord Somerville makes the comparison on a different principle; stating the produce in wool per acre, from four different breeds of sheep: South Downs, Ryelands, half-blooded South Down Merinos, half-blooded Merino Ryelands. The South Down and Ryeland sheep carry the finest wool of any of the native breeds of England; that of the South Down sells at 1s. 10d. that of the Ryeland at 2s. 2d. sterling per pound. The

sheep were store ewes of each kind ; and from accurate experiment he found that one acre of good pasture-land, with an allowance of turnips for winter food, at the rate of about fifteen sheep to the acre, carried $6\frac{1}{2}$ South Down, 9 Ryelands, $7\frac{1}{2}$ half-blooded Merino South Down, $10\frac{1}{2}$ half-blooded Merino Ryelands. The produce was as follows.

$6\frac{1}{2}$ South Downs, at 3 pounds per fleece, at 1s. 10d. per pound, pay 5s. 6d. each, or 35s. 9d. per acre.	}	sterling. 1l. 15s. 9d. or \$7 94
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9 Ryeland store ewes at $2\frac{1}{4}$ pounds per fleece, at 2s. 2d. per pound, pay 4s. $10\frac{1}{2}$ d. each, or 43s. $10\frac{1}{2}$ d. per acre.	}	2l. 3s. $10\frac{1}{2}$ d. or \$9 75
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$7\frac{1}{2}$ South Down Merino ewes half-blooded, at 4 pounds per fleece, 3s. per pound, pay 12s. each, or 90s. per acre.	}	4l. 10s. 0d. or \$20 0
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10 Ryeland Merino ewes, half-blooded, at $3\frac{1}{4}$ pounds per fleece, and 3s. 2d. per pound, pay 10s. $3\frac{1}{2}$ d each, or 102s. 11d. per acre.	}	5l. 2s. 11d. or \$22 86
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And this great difference of proceeds, amounting in each mixed breed to more than twice and one half that of the native sheep, accrued between the half-bloods of each race and their natural ances-

tor: what then will be the profit when we have arrived at a flock of the fourth or fifth cross, which yield wool of equal value, and generally more in quantity than that of the pure blood. Lord Somerville answers the question by stating, that on the above allowance of pasture for seven months, and turnips in aid for winter food, the return will be ten guineas per acre.

The improvement in the carcase, and in the disposition to fatten, is stated to be almost equal to that of the wool, even when crossed with the celebrated Dishley breed. Wethers of this breed are remarked to have fattened more kindly than the pure Dishley, at the same time that they produced as much wool of double the value: and these experiments and calculations were made in England, where there existed a great prejudice among the manufacturers against native fine wools of this description, which had the effect of a combination in the market, and kept down their prices. They surely, however, are sufficient to convince the most prejudiced, and to satisfy the cupidity of the most craving. But let us bring the matter home, and examine from a very simple statement how the account of profit stands with us. Hitherto wool from our half-bloods has sold at one dollar per pound, when that of our common sheep was 3s. or 3s. 6d. but we will take the first at only 6s. and that of common wool at 4s. and laying aside all consideration of high prices for

the breed, state the profits in wethers of each kind. Suppose then a well-kept common wether to yield 5 pounds of wool at 4s. per pound, the amount is 20s.: and suppose the half-blooded wether to yield no more (which is not doing him justice) at 6s. per pound, the amount is 30s. Now deduct from each 16s. for their maintenance for one year, which is quite as little, if not less than they will cost; the profit on the common sheep is 4s.; on the half-blood Merino 14s.; three times and the half as much. Extend this to one hundred sheep. The 100 common wethers will yield in wool a profit of \$50; that of the 100 half-blooded Merinos \$175. Carry this on to the 4th or 5th cross, when the wool equals the best Spanish, and suppose that to sell for no more than it did in England in the year 1802, when there was a plentiful market 6s. 6d. sterling, or 11s. 6d. currency per pound: then the common wether yielding as above a profit of 4s.; the Merino will give 41s. 6d. Extend this to 100 sheep of each kind: 100 common wethers yield as above, \$50; the 100 Merinos \$508 75.

But again, that the field of objection may be exhausted, it is asked, shall we not overstock the market with fine wool; and when we have converted all our sheep into Merinos (if that time should ever arrive) how are we to supply those articles which require coarse wool? To the first question it may be answered, that in the three

years ending in 1804, Great Britain imported 18,468,713 lbs. of Spanish wool : more than six millions per annum. So that after we have supplied our manufacturers, we shall not want a market for our surplus for many years to come. To the second inquiry we may answer in the words of Lord Somerville, that cloths made of fine wool are more beautiful, lighter, warmer and stronger than such as are made of coarse wool ; and that there is not a single article of manufacture (not excepting carpets) in which coarse wool is now used, which would not be doubly valuable if made of that which is fine. With any unprejudiced man, these statements must put the question of profit, as it respects both the present time and the future, at rest. For although the present glut of Spanish wool in this country and in Great Britain, as well as the dispersion of the Spanish flocks over all the world may seem to contradict these statements ; still that very dispersion, as well as the ruinous devastations of the war, have so greatly diminished the numbers of Spanish sheep, on the whole, that as soon as the present supply of fine wool is expended, the article must again rise in its price : and Great Britain will probably look for a great length of time to this country for a supply of fine wool. For food, not articles of manufacture, is the great object of her agriculturalists ; and the taste of the whole na-

tion will not soon be so changed, nor the prejudice of her farmers so far overcome, as to prefer Spanish to English mutton.

CHAPTER II.

High and low keep—Summer pasture—Stocking land—Weeds—Small fields—Fences—Sheds—Water—Winter management—Fold and accommodations—Rye—Rowen—Hay—Corn—Roots, &c.—Quantity of food—Water—Salt.

On the Maintenance and Support of Sheep.

IT having been observed that the Merino flocks in Spain are generally kept low, and seldom, or never appear in high order ; it has thence been falsely concluded that low keep is essential to fine wool : but the low state of the Spanish flocks, so far as that is the case, is rather the effect of necessity than choice. The great numbers of which their flocks consist, and the long and fatiguing journeys they are compelled to take, in which the old and the young, the strong and the weak are driven together, cannot but prevent these sheep acquiring, or at least retaining that state of vigour and high health, to which they are naturally disposed : and we have the testimony of Mr. Laysterie in France, of Mr. Pictet in Switzerland, and of almost every enlightened agriculturalist on the continent of Europe, as well as of Lord Somerville, Sir Joseph Banks, and Dr. Parry in Eng-

land, that whilst the Merino, from better food and more skilful management under their care, has improved in shape, increased in size, and obtained a heavier fleece ; he has uniformly preserved, and in many instances improved the fineness and every other excellence of his wool. In proof of this fact, Dr. Parry produced a piece of cloth to the Bath Society in the year 1806, made from wool of his Merino Ryeland sheep of the 4th cross, which exceeded that made from the best Spanish piles : and this from sheep which had been kept in high order for more than 12 months preceding : nor are we without sufficient testimony as to this point from our own experience. No sheep can be kept in higher order than those of Chancellor Livingston ; yet now after seven years their fleece will bear a comparison with the finest from Spain or any other country. On the other hand, it must be confessed that Mr. Shepherd, a very respectable English manufacturer of superfine cloths, and at the same time a skilful farmer, contends that high keep will depreciate the quality of wool ; that from this cause his own half-blooded Merinos had fallen off so much in four years, that at the same rate, in four more, it would return to the quality of the maternal fleece : and that after three years hard work, and high keep, he saw a manifest depreciation in the quality of the wool of a full-blooded ram he had purchased from the King's flock. He corroborates his opin-

ion by an acknowledged fact ; that after an open winter, when the large flocks of sheep that are fed on the downs and open pastures of England can get plenty of food, they are always found to yield a larger quantity of wool, and at the same time universally, of a coarser quality.

But as Mr. Shepherd stands alone in this opinion, in opposition to the experience of almost every other breeder ; allowing the fact to be true, we must suppose some deception has misled his judgment in his conclusion : and Dr. Parry has clearly pointed out what that is. The Doctor allows that the wool of the same individual sheep will be always comparatively fine or coarse, as he is at one time poor and lean from want of food, or disease ; and at another in high order and fat, from good health and high feeding : so that the fineness of a sheep's fleece of any given breed, will within certain limits be found to be inversely as its fatness. But this is always a matter of comparison between the fleece of the same sheep at one time and another ; according to his state of health and degree of fatness : and a very different circumstance from a change in the natural constitution of the animal producing a permanent depreciation of his own wool, and in that of his race. It is likewise acknowledged on all sides, that wool which is fine, in consequence of low keep, or ill health, is always unequal in the pile, and deficient in proof or strength. Good thriving store order,

which is manifested by a whole fleece, a lively eye, and nimble motions, is therefore allowed on the score of health to the sheep, as well as that of the value of his fleece to be the best condition in which Merinos or any other sheep can be kept.

But although good keep and judicious management unquestionably improve this animal in all respects, yet let it not be supposed that he is proof against improper and scanty food, or neglect and mismanagement. Mr. Laysterie informs us, that he had found Spanish sheep in Sweden, Saxony, and France, which had manifestly depreciated ; and that of two hundred Spanish sheep imported into France so early as the year 1776, and which were divided among the farmers of different districts, all except those committed to the care of Mr. Daubenton had degenerated ; whilst his had succeeded to his most sanguine expectation. That this degeneracy in France, as well as elsewhere, could manifestly be traced to insufficient and bad food ; to want of care and attention ; to unwholesome and confined sheep-houses, in which the sheep were suffered to lie in their dung ; or to exposure to the inclemencies of the season without any shelter at all : whence the sheep had degenerated in size and shape, and their wool become less fine, less soft to the touch, and deficient in strength. That he had seen many flocks in Sweden, and had constantly observed that those animals which were under the care of inattentive

persons had degenerated ; whilst those flocks which were kept by careful breeders had preserved all their primitive excellence : that he had made the same observation in Germany and in Holland ; and that his opinion had been confirmed by the best agriculturalists in those countries. That even in Spain, the Merino had been known to degenerate from similar causes, and that he had seen flocks in that country, as well as in Sweden, producing wool of a very inferior quality. He therefore thus concludes : “ Let me advise those who adopt the Merino race, to guard themselves against an opinion that it will preserve the excellence of its fleece, if it is subjected to wrong treatment, or abandoned to negligence and ignorance.”

In stocking lands with sheep, as well as with any other kind of animal, the variety of the creature must be adapted to the nature of the soil, or we shall not get so great a return as the land is capable of making. Deep and strong land is required for large long-woolled sheep : on light land they will constantly depreciate ; and all attempts to raise them to profit, and in perfection on such pastures will fail. On the other hand, light loamy soils, hilly and mountainous districts, are fittest for small close-woolled sheep ; and the quantities of wool and mutton raised on such pastures, from small sheep, will be made up in the greater number they will support. There can be no question therefore, on such soils, with regard to the profit of

raising Merinos, which on the most moderate computation, calculated on the returns of wool and mutton only, will yield five or six times the profit of common sheep. Cold soils, especially those that lie on a wet bottom, or which are covered with water during the winter, are unfit for sheep of any kind: on such they are liable to that terrible disease the rot, of which happily we know but little as yet in this country. Instances are recorded of whole flocks perishing with the rot, from feeding but a short time on cold wet lands: and Lord Somerville mentions one instance of a farmer who lost his whole flock, merely by feeding one night on a wet common adjoining his lands; all the ewes dying as they dropped their lambs. Fattening sheep may be fed on such soils, because the rot is a disease no way infectious, and which does not interfere with their becoming fat. But when from necessity we are compelled to let store sheep run on such pastures, we must be careful not to put them on until the middle of the day, nor should they be suffered to remain on them long, at any one time. Of the natural grasses of this country, the spear grass, the blue grass, and the white clover are among the very best for sheep. They seldom grow tall or rank, afford a sweet bite, of which the sheep are very fond, and are very nutritious; and where good, will carry more sheep per acre, and fatten them faster than any other of our pastures. Persons;

therefore, possessed of such lays should hesitate long before they turn them up, because such pastures will grow thicker and thicker, and will support more and more sheep, to an increase not easily credited ; whilst they are well managed under sheep husbandry : and as we are not in the habit of sowing the seeds of these grasses, we must leave our pasture lands for several years before they will regain a sward of this kind. I see a yearly improvement of such pastures as I possess of this kind, and I know one field which carries easily, six sheep of the mixed Spanish breed per acre, through the summer ; although from being near the winter-fold, the sheep run on it whenever the ground is bare, through the winter and spring.

The next rule with every good grazier, after adapting his stock to the nature of his soil is, to put on as many creatures as his pastures will carry ; without on the one hand suffering the grass to grow up in tufts, or on the other to have them eaten so bare as to expose the roots to be burnt by the sun. I suspect this to be a nicer and more difficult matter to accomplish in this country than in the moist climate of Great Britain. I have not been able to satisfy myself on this point, and have heard better farmers make the same confession. Still it deserves all our attention, or our profits will be greatly lessened. No creature will eat grass which is running to seed ; and sheep are so

nice in this particular, that in fields not sufficiently stocked, they will be found constantly to dwell on those bare parts, which were first eaten ; whilst the grass is running to seed all around them. All plants exhaust land much more whilst they are ripening their seeds, than during all the other periods of their growth. Another evil of still greater consequence, arising from this circumstance is, that weeds are thereby suffered to run to seed and increase. There are many plants of this description : even our greatest pest, St. John's wort, which sheep will eat when very young, but will not touch from the moment they begin to form a stem. As soon, therefore, as it is discovered by the grass and the weeds running up, and forming stems for seeds, that we have understocked our fields, it will amply repay the expense to run over them with a sithe, by which the present feed will be increased, at the same time that the St. John's wort, and other small weeds are destroyed. At the same time that this is done, burdock, sharp-pointed dock, bur marygold, poke and sheep's laurel, should be destroyed. This useful work will be attended with but little expense, and where fields are to be kept long in pasture, will be amply repaid in the greater number of sheep they will support, in the cleanness of their wool, and the preservation of their health. Another maxim in grazing with sheep is, that the young should be separated from the old, the

weak from the strong, wethers and rams from the ewes and lambs ; and particularly that lambs should be separated, to a considerable distance from their dams, immediately after weaning : but this division cannot be made, unless we have a considerable number of fields. Small inclosures, therefore, in proportion to the size of the flock, (for the fields should be large enough to afford the sheep necessary exercise) will be found not only convenient, but profitable. Sheep love to range, and let the field they are in be ever so large, they will be continually passing over the whole in search of the sweetest bite, by which they soil and waste a great deal of feed. By small enclosures, we can at all times command clean grass, and the regular, and even feeding of the whole will be facilitated : by which more animals will be fed on the same quantity of land, and thrive better. But to accomplish this, the flock should be frequently changed from one field to another ; otherwise, whilst they are consuming the pasture in one, another will be shooting up its stems for seed, and the pasture will be lost. It is likewise advantageous to enter upon the pasture fields early, while the grass is young and sweet, and the weeds tender ; many plants at this time will be eaten by sheep which a very little later will be rejected ; and this is another reason for small enclosures, and a quick succession from one to another. Any slight fence, provided it is close,

will confine sheep, but over a stone-wall they will find a way to get, even when staked and ridered. I have thought of laying across the wall, and within a foot of the top, pieces of small timber, the ends of which having been sawed off square, should project about a foot on each side of the wall ; upon these to fix small poles, or to nail to the ends split hoops. This would be easily made, would consume but little timber, and would effectually prevent sheep getting over the wall.

All pastures should be furnished with shade and water, and for sheep, perhaps shade is more necessary than water. Great heat is found more prejudicial to sheep than the severest cold ; and soon after shearing is particularly injurious. Sheep are always found lying in the shade in the middle of a summer's day ; and so necessary is shade thought for sheep in the middle of the day in summer, by the best agriculturalists on the continent of Europe, that when the pastures do not afford sufficient shade, the shepherds are directed to take the sheep into the sheep-houses for some hours at noon, during the continuance of hot and sultry weather. It is too common an opinion that sheep do not require water ; but although it is true that when on good succulent food, and when they are kept night and day in the fields, they can do without water better than any other kind of stock, yet when they can get at it, they always go regularly to it once or twice a-day, and when debar-

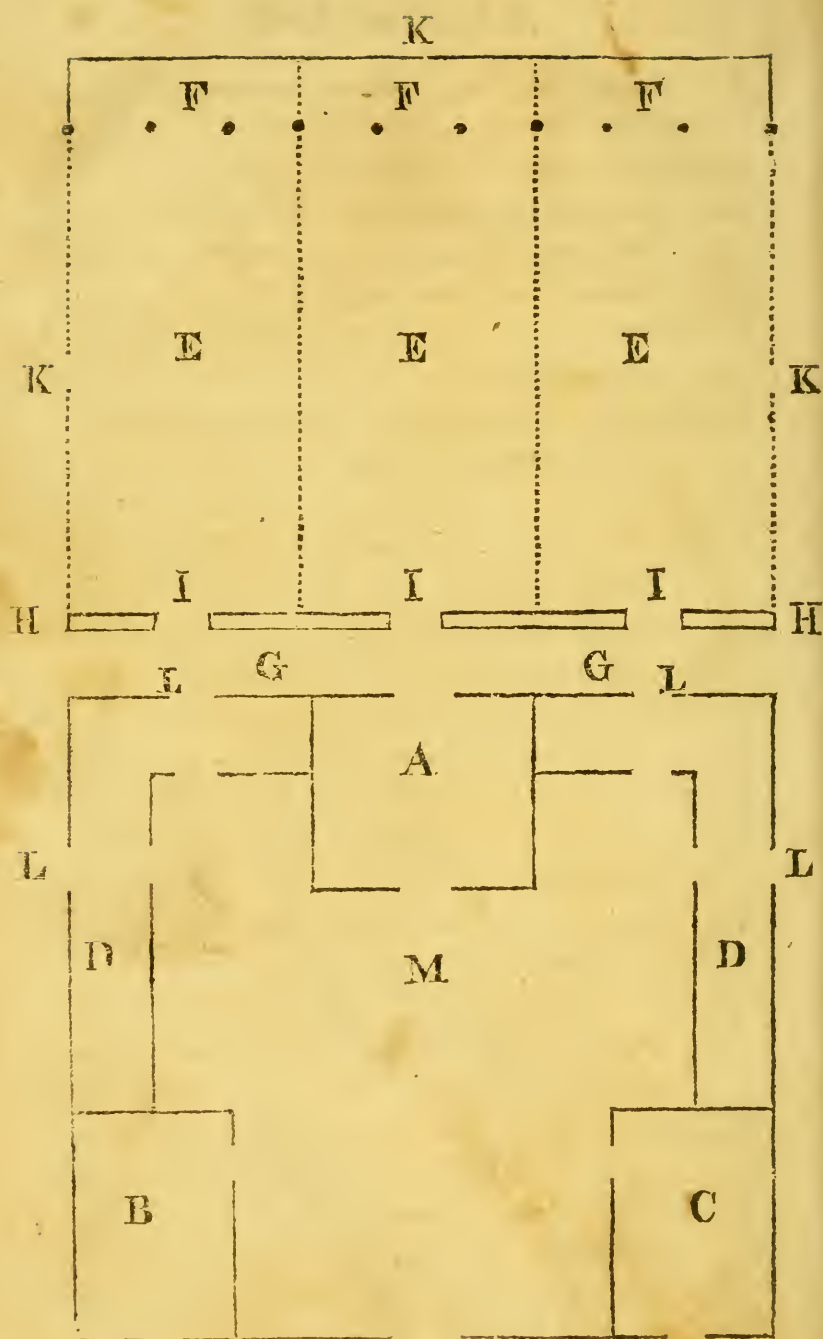
red from it, for several days together, they run greedily to it, and drink more than is beneficial. When, therefore, their fields do not afford what is good and sweet, they should be driven to it once every day, or at farthest once every other day. Putrid stagnant water is worse than none, it is truly poisonous to sheep, and no pains should be spared to free their pastures of it.

Winter Management.

The length and severity of our winters cause the great and principal expense, as it respects labour, food and shelter, which attend keeping a flock of sheep. During five months, they require constant care in foddering and protecting them from the severity of the season; in attention to their occasional complaints, and particularly in watching and attending the ewes and their lambs during the lambing season. In Great Britain, it is not uncommon to leave large flocks of sheep to shift for themselves, in bleak exposed situations; or at least to afford them no other shelter than a hedge, or the southern side of a hill. But such practice is condemned by their best agriculturalists, who assure us that sheep will abundantly pay for moderate shelter in the increased quantity and improved quality of their wool; as well as in the preservation of their health and strength. Lord Somerville gives it as his opinion, that a

slight shelter against severe cold, and particularly wet, is absolutely necessary to the carcase, as well as the quantity and quality of the wool : and that want of necessary attention in this particular, exposes them to many diseases. In very severe climates, such as Denmark and Sweden, they find it absolutely necessary to house their fine-woolled sheep, during winter. With us, this may not be so necessary ; unless to those that wish to have early lambs, many of which will be lost, if suffered to drop in severe nights, even under an open shelter. Indeed, in all countries in which the snow lies for any length of time, so that it becomes necessary for two or three months to fodder the sheep, a fold-yard, round a barn, with common sheds, open to the south, divided by hurdles, or any moveable fences, into different yards, for strong or weak sheep ; for the old and infirm, and for ewes in different states ; as well as close apartments for sick sheep ; for yeaning ewes and very young lambs, will be found the most convenient and best economy. My winter-fold is of this description ; of which, as I have found it very convenient, I have added a plan and description.







- A. Barn, with cellar under it for roots.
- B. Carriage-house.
- C. Cider-house.
- D. Buildings of which the upper story serves for hay; the lower story stables: sheep houses and sheds open in front.
- E. Winter folds, about 50 feet wide and 150 feet long; with
- F. Sheds to the north of the folds, open in front, made with posts put in the ground, and covered with straw. Each of these sheds and folds will accommodate from 50 to 70 sheep.
- H. These double lines represent small troughs fixed to the fence, which separates the folds from the road, for feeding the sheep with grain, slop, roots, salt, &c.
- G. A road, 12 feet wide, so that a loaded cart can pass through it to charge the buildings marked D.
- I. Openings, with small gates from the folds, through which the flock confined in either fold may be let out and fed with grain, &c. without being incommoded by too great a number at one time, or mixing the flocks.
- K. Openings, with small gates into fields adjacent, to let the sheep out for exercise when the weather permits.
- L. Openings from the sheep-houses.
- M. Barn-yard.

Where care is taken, and lambs do not fall before April, nothing more is really necessary than a common hovel, made by crotches set in the ground, covered with poles thatched, or buckwheat straw, or any other litter that will keep out the wet. Even this, however, should be placed within, or rather on the north side of the fold-yard, in which the sheep are foddered ; and if this be kept littered with straw, bottoms of cornstalks, or any other trash, it will not only keep the sheep dry and comfortable when the thaws come on in the spring, but will afford a supply of the best manure, which will most amply repay any trouble and expense attending it. And another great advantage to be drawn from such fold-yards is, that after all the loose manure which can be scraped from their surface is carried off, they will afford one of the best and richest kitchen gardens for roots of all kinds, cabbages, &c. that can possibly be made. When it is necessary that any sheep, such as invalids, or ewes with lambs, should be housed during severe weather, care should be taken that the apartments should be airy, large in proportion to the number confined in them, with large windows in every direction, which should be kept open, except during stormy days, or very severe nights ; that they are frequently littered with fresh straw, and that they are cleaned out whenever they become in the least offensive. A square yard should at least be

allowed for every sheep: and even where the buildings are constructed in an unexceptionable manner, the sheep should be driven out in clear weather into a yard before them, and frequently into the open fields, for the sake of air and exercise. Mr. Laysterie informs us, that under such care and attention, there are owners of flocks of fine-woolled sheep in Saxony, who have no pastures at all, but keep their sheep in houses and yards throughout the year. Nor is this treatment found injurious either to their health, or the fineness of their wool, as long as care is taken to supply them with proper food and water, and to keep their houses clean and airy.

Fold-yards, as well as houses, should be furnished with racks for hay, which are best made like ladders of long chesnut or oak poles, first bored with inch holes, at the distance of four inches, and then split, so that one pole makes the top and bottom of the rack. The rounds are best when made of split stuff, but may be made of common round stuff, of the size of hoop poles, and should be about three feet, or three and a half long. These should be placed vertically on the ground, at the distance of about 18 inches, and secured to stakes driven into the ground, above and below. If placed between two folds, they may form the division; the sheep eating on each side. These ladders being removed in the summer, and placed under the hovels, will be longer

preserved, and leave the fold more free for cultivation. The bars should be so near each other as to prevent the sheep putting their heads into the racks and stirring the fodder about with their noses, to seek for the sweetest and most succulent food, to the injury and loss of what remains : and being perpendicular, the seeds, leaves and dust of the hay, will not fall on their necks and shoulders, which greatly injures the wool.

Besides, the racks, troughs for meal, grain, &c. should either be placed at the bottom of the racks, or as I have placed mine, on the outside of my winter-fold ; which being raised 12 or 14 inches from the ground, prevents much waste, by the sheep running into them, in their hurry to get at their contents. (See plan H.) These troughs may be made of two boards, of about 8 inches wide, nailed together at an angle thus  which, standing on the ground may be supported by pieces of board, about 14 or 16 inches long, cut so as to receive them thus.  Mr. Livingston

has furnished his folds with boxes, latticed in front like a common coop for fowls, and furnished within with a rack and small trough, towards the back part, for his lambs. The boxes may be made about the length of a common board, about three feet high and three feet broad ; and the lattices at such a distance as to let in the lambs, but exclude the ewes. These being always supplied with ten-

der hay, and the troughs occasionally with bran, or Indian meal, the lambs within, undisturbed by the ewes, soon learn to eat, both, by which their growth and strength are greatly promoted.

The sheep rack should be sufficiently long to allow the whole of the flock, or at least as many as must feed at one time, sufficient room, without crowding each other ; or at least should be so placed that one portion of the flock may be feeding at the rack, whilst the other portion is at the troughs.

Around, or near the fold, should always be one or two pasture fields, into which the sheep may be permitted to go during the middle of the day for exercise, whenever the ground is bare, or nearly so : and if one of these had been shut up from the end of the summer, or had been sown early with rye, it will be found very beneficial, especially for ewes and lambs, early in the spring : and the rye will not only be very little injured by being thus pastured with sheep, but if the same field be kept for the same purpose, and repeatedly sown for a succession of years with rye, and pastured every spring, the crop of rye will be better and better ; and the field so far enriched, that although at first it would only produce rye, after four or five years it will yield an excellent crop of wheat. The only precaution necessary in thus feeding rye, is not to let the sheep run on it during the late fall, and the early winter and spring months ; unless the ground be frozen : otherwise,

instead of biting off the leaves, they will tear up the plants. After the ground is well settled in the spring, the sheep may again be permitted to run on it, until the rye begins to rise for seed : under this management, the feet and tails of the sheep do more good, than their teeth do injury. A field of good rowen which has been shut up, and preserved from the latter end of the preceding summer, is more than a good substitute ; it is perhaps better than rye for early spring feed. At the first view, rowen has an unfavourable appearance from the covering of decayed autumnal grass, but when this is removed, it presents a growth of fresh green grass, brought up under the shelter and warmth of the covering of old grass. The sheep eat both together, having as it were hay and grass in the same bite : it agrees remarkably well with them, and is less apt to scour them than rye.

Good hay, with a very little corn, is quite sufficient for the flock in the beginning of winter ; but it is certainly very expensive ; so much so, that the English give very little of either to their sheep, but keep them all summer on grass, and all winter on green food ; such as turnips, cabbages, carrots or potatoes ; particularly turnips. There is no branch of agriculture in which we are more deficient than this, of raising green food for our stock during winter ; which, unquestionably is much cheaper than hay and grain ; but it must be confessed our climate, and the price of

labour, present great difficulties to this excellent system. As far north as the state of New-York, we cannot have fields of turnips to be fed off during winter by sheep, as is the case in England. Whatever roots we raise, except parsnips, must be taken up, and housed or buried, to preserve them from severe frost : and this is with us so expensive an operation as greatly to lessen the profit of the system. Still, however, besides that such food is actually better for sheep, especially for breeding ewes ; on the score of profit it is well worth the experiment ; and if proper care is taken by manure and good tillage to raise the roots of a large size, the labour of taking up and preserving them will be so much lessened, as to render them a much cheaper food than only hay and grain. Carrots and potatoes are so much more nutritious than turnips, that they pay better for the labour of raising them. The large white beet called mangle Wertsel, root of scarcity, is likewise very nutritious ; and as well as carrots, afford an abundant crop on deep and light loamy, or sandy soils, which only are fit for them. As far as my experience goes, the carrot is to be preferred. They answer all the purposes of corn at a much less expense : and by giving a small quantity daily to the sheep, at the commencement of winter, they render the change from green to dry food less sudden and less injurious ; particularly to old and infirm sheep.

When roots or cabbages are not provided for the purpose, ewes near lambing, and such as have early lambs, must have some moist food, or they will probably fail as nurses ; and many lambs will be lost. For this purpose, I have found a pint of that better kind of bran called shorts, twice a day to each ewe answer perfectly well, and occasion such a flush of milk, that whilst the lambs were young, it became necessary to milk the ewes occasionally, to prevent injury to the udder. Oil cake, ground or soaked, and crushed beans, peas, or oats, are all more nutritious than bran, and when mixed with water, are excellent substitutes for green fodder. In Denmark, Sweden, and Saxony, they eke out their hay, with chopped rye, barley, and oat straw. These, mixed in about the proportion of seven pounds of meal to 300 wt. of straw, is allowed to every hundred sheep per day, and fed at three several periods. This, in the commencement of winter, makes for store sheep a very good substitute for hay ; as the winter advances, more and more hay should be allowed, giving at one period chopped straw twice, and hay once a day ; at another, hay twice, and chopped straw once a day ; which has the farther advantage of compelling the shepherds or servants to fodder the flock three or four times a day, which is not only saving of fodder, but beneficial to the sheep. Of peas, beans and corn tops, the sheep are fonder than of the best hay ; and

when well preserved, they are among the very best articles of food. Neither of these, but particularly the peas or beans, should be suffered to dry before being cut : nor should the peas-haum be threshed very clean : some green pods being left whole, render it at once more palatable, and more nutritious. In some parts of Prussia, a particular species of reed, which grows in ponds, is given to sheep : in this country, salt hay and sedge when they can be procured, especially if cut and mixed with a small quantity of meal, will be found excellent provender. On these, the wethers and barren ewes may be kept all the winter ; and even the ewes with lamb may be fed on them during the early part of the season, reserving the green food for the ewes, towards, and during the lambing season, and until they can be put on fields of rye or rowen.

With all stock, it is allowed to be very dangerous to pass suddenly from high feeding to that which is scant and poor ; or from plenty of green food, to that which is altogether dry. Hence arises a very important maxim respecting sheep ; which is, as soon as the pastures fail, towards the end of autumn, to put them to turnips or cabbages, if we have them ; and this will perhaps be found our best system respecting turnips : to sow a sufficient quantity for our sheep, to be eaten after the grass fails, and before the snow falls, so as permanently to cover the ground. If they are fed with any

regularity, hurdling them off in such portions as the sheep will eat clean, they will go far; and the land will be so well manured as to produce an abundant crop of wheat, oats, or any other grain the next season. When this provision has not been made, pumpkins may probably answer our purpose. I cannot speak from my own experience on this subject. I made the experiment this year on a small scale, with a few weakly sheep, lately imported; but my pastures were very good, and they refused them: but Chancellor Livingston informs me that he fed them to his sheep the last fall; that he found they ate them freely, and that they agreed perfectly well with them. Should this be confirmed, and if what I hear is true, that we have in New-Jersey a pumpkin that will keep, if preserved from the frost, for more than a year; we have in them an excellent substitute for turnips, carrots, cabbages, or any other green food, with the cultivation of which we are perfectly acquainted; and which we know we can raise in any quantity, and at much less expense than any root. At any rate, however, care should be taken during the period when grass is scanty, to admit the sheep daily to the fold, and give them some hay, if they will eat it, or a very little corn; that they may be in perfect good health, when they are first confined to the fold: for if they are pinched, and fail in the beginning of the winter, it is difficult to get them in good heart again.

Mr. Laysterie informs us, that in the north of Europe, about three pounds of dry food is allowed to a moderate sized sheep per day ; but that this seldom consists altogether of hay : one or two meals a day consist of chopped oat, barley, or rye straw, with a small mixture of meal, or a little corn ; that when roots make one third of their food, about $3\frac{3}{4}$ lbs. or 4 lbs. in the whole is thought sufficient. The cut straw is rendered more palatable and nutritious, by scalding it with boiling water, and this allowance of food is divided into three or four meals a day. Of good hay, our sheep certainly do not require so much, especially if it be given at three or four different meals ; by which more is saved than will pay for the additional labour ; and even in this way it should always be assisted by roots, or a very little grain. The best way, however, is not to limit the quantity necessary to keep a flock constantly in good thriving order, except in so far as to avoid waste. No animal pays better for his food than the sheep ; the quantity of his wool always bears a proportion to his keep and shelter ; and it is in vain to expect strong and healthy lambs from poor and weak ewes. As long as they appear full, strong and lively, they have enough ; but if they fall off in the least they require more ; and it will always be found more difficult, and more expensive to bring them up again, than to preserve them steadily in a good and thriving condition.

It has been already mentioned that some water should be given to sheep daily : it is even more necessary in winter, when they are on dry food, than it is in summer : and when it is not within their reach, they should be turned out to go to it every day ; but where it can easily be had, a pump in the barn-yard, or a trough to be filled from a spring, is certainly most convenient. A little meal, mixed with the water, makes it more nutritious ; and where oil cake is given, a good method is to soak them in water, stirring them well, whenever the water is given ; and at the last, giving the soaked cakes that remain at the bottom of the vessel, mixed with cut straw : so small a quantity as 7 lbs. to a hundred sheep per day, is said to be found very beneficial.

It is remarkable, that whilst salt has been considered necessary for sheep and cattle in almost every part of the world, it is of late only that the English have fallen into the practice of giving it. In Sweden, Denmark, Saxony, France and Spain, it is allowed to sheep, and not only considered essential to their health, but conducive also to the fineness of their wool. Our farmers are in the constant habit of allowing it to their sheep, but without any other motive than that it is thought in general conducive to their health ; nor with any great regularity as to the periods or the quantity given. In most countries, it is thought peculiarly useful in damp weather, and in Spain, for this rea-

son, it is given spring and fall, to the quantity of 128 lbs. per annum to every 1000 sheep. Lord Somerville mentions as much as a ton annually to 1000 sheep ; and recommends it, whenever sheep are put on strong wet lands or young clover ; and in the fall of the year, when sheep are first put on turnips, as a preventive against the rot. By some farmers, it is withheld from ewes within four or five weeks of lambing, from a supposition that it is so great a provocative as to induce them to drink too much. In Europe, it is frequently mixed with yarrow, and other bitter herbs, as a stomachic ; the place of which may be supplied with us by branches of spruce, cedar and pine, of which sheep are very fond, and which agree perfectly well with them : or it may occasionally be mixed with tar, by spreading them on a board, which is certainly a good and healthy practice.

CHAPTER III.

Blood—Wool—Carcase and age of the ram—
Number of ewes—Changing the ram—Season
—Lambs—Sucking—Weaning—Castration
—Docking—Marking—Washing—Shearing
—Sorting wool—Shearing lambs—Wool salv-
ing, &c.

Breeding, &c.

IT being agreed that the great excellence of the Merino, the fineness of his fleece, is peculiar to this race of sheep, and is in no degree attributable to the influence of climate or soil ; and it being likewise an established fact, that the ram has much greater influence upon the progeny than the ewe : it becomes important to choose rams possessed of such qualities as we wish to propagate.

And as the Merino has been found to transmit all his excellence of fleece and carcase to his descendants so perfectly, that at the fourth cross, no difference in these respects can be discovered between the sire and his progeny ; a question hathence arisen, how far it is prudent to breed from a ram of the mixed breed, of equal or perhaps superior excellence at a less price, than from one of the pure blood at a greater.

Dr. Parry, who has carried the mixed breed to

a greater degree of perfection than any man in England, is of opinion, that when a person has attained to such a degree of excellence in wool and shape, in his mixed breed of the 4th or 5th cross, as to equal or exceed the sire, it will not only be perfectly safe, but in the latter case, it is best to breed from such rams : and he quotes in support of his opinion the practice of the present breeders of horses, who prefer the English race horse to the best Arabian, from which he is descended ; because they find him possessed of more beauty, strength and agility than his ancestors.

But we know the influence of the dam to be very considerable ; and in general, it is allowed to be such in the first cross, as to prevent the improvement of the wool to more than double the value of her own ; and where this ceases, it is impossible to say. Dr. Parry himself, acknowledges, that rams of the second and third crosses, although their wool may be equally fine with that of Merinos, are not to be relied on : and if this is the case, the same argument must surely apply to the 4th and 5th crosses, though in a less degree. However justifiable, therefore it may be, in breeding in, and in, to make use of mixed rams of the same grade, or of a superior grade to the ewes, with a view to preserve the excellence already acquired : yet unquestionably for the purpose of amelioration, and forming a flock from the com-

mon ewes of the country, it would be unsafe to breed from such a ram ; lest the descendants should follow the maternal grandsire instead of the sire ; as we see frequently happens in coloured sheep. A black ewe and a white ram may give a white lamb ; but this lamb, with the same ram may as likely give a black as a white lamb. Mr. Laysterie is decided on this point ; and quotes in support of his own opinion, the opinions of many of the best agriculturalists in Europe.

Improvement in wool and carcase is every breeder's object in selecting rams and ewes for his flock : and with such views, size, shape and wool, are generally attended to. There are but few, however, who know to what minute particulars, his attention should be directed, or in what nice points a judicious selection may improve his flock. Mr. Bakewell, of Dishley, carried this matter so far, as to give to his animals almost any point he chose : to lighten the bone, to spread the loin, to lessen the head and neck, to shorten the horn, or to take it away ; to increase the quantity of fat, and to place it where he pleased. We know not as yet, to what degree of perfection, domestic animals may be carried ; or that any limits are set to variety and improvement in this way.

In making a flock, therefore, of fine-woolled sheep ; it is not sufficient to take care in general that the fleece of the ram is heavy and fine : it should be a prime object that the wool should be

equally fine on the rump as on the shoulder : and as far as possible on every other part of the body : and the shape should likewise be attended to. A small head, a strait back, a square loin, a round barrel, and short legs are in general preferred ; and when connected with a lively eye, and a soft skin of a rosy hue, secreting abundance of yolk, are accounted sure signs of health and vigour, with a ready disposition to fatten. Size alone, is an object of less moment ; as it has been unquestionably proved, that the same quantity of pasture will produce as much, or more wool and mutton, from small sheep (in other respects equal) than from large.

It is hardly necessary to add, that the nearer the ewe approaches in the quality of her wool, as well as in her shape, to those qualities which we seek for in the ram, the sooner we shall arrive at the excellence we wish to acquire and propagate. This is a point to which every breeder has it in his power to attend ; we possess a considerable variety of sheep, from which he may make his selection : and the more attentive he is to it the greater will be his profits. It is only necessary to caution him from being tempted by the large size and heavy fleeces of those sheep which have a considerable mixture of English blood. If he chooses such, he will probably be put back one cross in his improvement. It is from among our

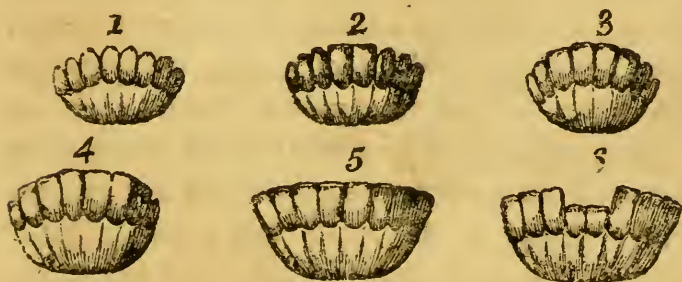
smaller close-woolled sheep he should seek his ewes.

Hitherto, whilst our stock of Merinos were small, and the price high, our anxiety to get on, and make a flock as fast as possible, has induced us to purchase lambs, and to put them as such to as many ewes as they could cover: and perhaps from similar motives the Danes, as Mr. Laysterie informs us, have adopted the habit of putting shearlings of eighteen months old, or even younger, to ewes. But even this is much earlier than is practised in any other country of Europe; where in general rams are not admitted to cover, until they are two or three years old: and in some countries they lay them aside again at seven or eight. There is little doubt but that it would be best to have patience until the ram has arrived at maturity, which the Merino does not acquire at soonest, until he is two years and a half old. When put earlier, his own growth may be checked, especially if put to above 20 or 30 ewes: and the proprietor may be disappointed both in the number and vigour of his lambs.

But, both in this country and in England, very old rams have been employed, and found to produce a healthy and vigorous stock.

The same observations apply to ewes. None should be employed before they are at least eighteen months; perhaps better at two years and a half old. Younger ewes produce small and weak-

ly lambs, and frequently make bad nurses ; yet it is contended by some farmers, that when suffered to breed early, they acquire a larger pelvis, yeau more easily, and make better nurses in future. Supposing this reasoning to be just, which I think very doubtful ; it is allowed, that their lambs should be taken from them soon after they are dropped, and reared upon a cow or a foster mother. Suckling is more exhausting than pregnancy, and interferes more with the growth of a young ewe.



We judge of the age of a sheep, as well as of all ruminant animals by the teeth. A lamb has eight pointed teeth, Fig. 1. About one year old they shed the two front teeth, and obtain in their places two broad and larger teeth, Fig. 2. One of two years old has four broad teeth, Fig. 3. One of three years old has six, Fig. 4. After four years, they have shed all their lambs' teeth, have eight broad teeth, Fig. 5, and are said to be full mouthed. After this the teeth begin to break, shorten and fall out, Fig. 6, pretty

much in the same succession in which they appeared : and by the time they arrive at eight or ten years of age, their teeth are generally destroyed.

Again, a great difference exists as to the number of ewes to which a ram may be put. Buffon limits the number to 25 or 30. In Spain, one ram is provided for every 25. In Denmark, they admit 40 or 50 ewes to each ram. In England, Thomson mentions as an instance of great vigour 120 : and Dr. Parry 146. In this country, some rams have certainly covered two or three hundred ; and there is no doubt but that if proper means are employed, a ram, perhaps without injury, will go to a greater number. On the contrary, indiscriminately to turn a ram with two or three hundred ewes in a season will greatly exhaust him ; many of the ewes will probably prove barren ; and of the lambs, many will be small and feeble.

When it is wished that a ram should cover a great number of ewes, he should previously be put into high health, and kept up during the season with the best of pasture, and plenty of grain. And instead of being turned into the flock, the ewes, which are in heat should be regularly brought to him. To discern such ewes, let a vigorous common ram be put into the flock, previously secured by an apron under his belly ; which being coloured with lamp-black or Spanish brown

mixed with train-oil, or kitchen grease, which will not dry ; he will mark every ewe which comes in heat. These being taken to the ram, and again taken away as soon as covered, he will not exhaust himself by needless repetition.

This is unquestionably the best mode, but it is likewise the most troublesome. My method has been, to keep up my ram with a few full-blood ewes during the day, upon a small, but very good pasture, that he may feed without disturbance ; and to put the flock of ewes to him every night, in a confined fold, his belly having been previously coloured, and every morning to separate and put into a pasture by themselves the ewes which have been marked.

By all these attentions, selecting the best rams and ewes, such as are in the vigour of their age, and never suffering the rams to be weakened and exhausted by numbers, we shall arrive at our object, to acquire a numerous flock of the most perfect sheep, with sufficient rapidity ; whilst at the same time, we shall preserve the vigour of both ewes and rams to the latest period of their lives. We have known in this country rams to be successfully employed after eight and ten years of age : and Mr. Laysterie mentions one at Rambouillet, which, at the age of eighteen, produced good lambs.

It is an old opinion, that by frequently changing the ram, and by procuring another of the

same breed from a distant flock, we shall improve our own. But this opinion has been so fully exploded by Mr. Bakewell in England, and all who have followed his example, that I should not have thought it worth mentioning, but to remove a prejudice, which, perhaps, some may still entertain. The better rule now is, to breed from the most perfect animals, although they should be descended from the same family, to the tenth generation. If I was to hazard a theoretical opinion on this subject, I would say, that beauty of form, and other corporeal qualities are preserved by breeding in and in; that vigour of intellect in man, courage and spirit in other animals are improved by crossing.

A ewe goes five months : the season of putting her to the ram, therefore, must be so calculated, as to have the lambs fall early or late, according to the wishes of the owner, and the provision he has made for their support. Early lambs are to be preferred on many accounts; they are stronger, and more able to bear the rigours of the succeeding winter; they are sooner fit for market; and hence, whether for store sheep or for the butcher, are most profitable. It is likewise observed, that when the first heat of the ewe is suffered to go by, the second or third return of impulse is by no means so sure; that such ewes are apt to prove barren, and perhaps, from the same cause, the lambs are less vigorous.

On the other hand, early lambs require great

care and attention; and unless comfortable shelter is provided for them, and an ample supply of roots, bran, oil cake, &c. is laid up for the ewes, only loss and mortification will be the consequence.

Even where lambs are meant to fall in April, which is quite as late as in our climate it ought to be; it will be found necessary to provide a field of early sown rye, or of good rowen, for the support of such ewes as yeau in the beginning of the month. With some of the best English farmers, care is taken that the lambs fall so early as Christmas; and the reason given for it is, that at this season they abound in turnips, cabbages, carrots, &c. for the support of the ewes: that long before the winter is out, such lambs eat hay, bran, &c. as well as the ewes: that when intended for the butcher, they come very early to market, and command a much better price; and that when kept as store sheep, they yield a very tolerable fleece, which in fine-woolled sheep, secures a considerable profit on the first year. To apply the same arguments to us, the lambs should fall in November. It may be worth the attempt which Chancellor Livingston has been making for a year or two past, by suffering his rams to run continually with the ewes. He will give us the result of his experiments, but it must take several years before the season, as it regards the flock in general, can be thus completely changed.

Lambs which fall in the winter, or very early in the spring, require so much care and attention, that it will be found much the most safe and convenient not to have too many fall together : this will be the case when the ram goes continually with the ewes : but when it is intended that the lambs should not fall before April, it is most convenient that the ewes should yeave much about the same time. With this intention, the ewes, from the time of weaning the lambs should be particularly well kept ; and about a week before putting the ram to them, should have a little oats or corn given to them daily. At Rambouillet, oats are recommended for rams during the whole season. They are supposed in a particular degree to impart vigour, and to have a great effect on the lambs ; which, in size, constitution and wool, are supposed to bear a resemblance to the ram or ewe in proportion to the superiority of vigour possessed by either. In proof of the truth of this opinion, a well fed flock is always found to produce more twins than one that is scantily fed ; and twins are also most common at the commencement of the lambing season ; being the produce of the male before his vigour is impaired. A strong argument for providing a full supply of rams.

Breeding ewes, likewise, should be particularly well fed with succulent nutritious food a few weeks before lambing : in consequence, the lambs will be far stronger, and the ewes will have a greater abundance of milk for their support.

All that has been said on the subject of shelter, as it respects older sheep, applies more forcibly to lambs ; especially when they are allowed to fall early, and in particular to those of the Merino breed ; which in general are so thinly clad, that they are very apt to suffer from cold. It is necessary, therefore, in cold weather, to shut up during the night such ewes as are very forward, that they may be sure to drop their lambs under comfortable shelter : because, during the first night, before they have been cleaned by the mother, and become dry, the lamb is most apt to perish from frost. Nor should the lambs be exposed at all to severe cold and wet, until they have acquired strength to endure, and a warm coat to protect them against it. It frequently happens, especially with Merinos, that the ewes make bad nurses, both from want of milk, and from neglect of their lambs ; this is another reason for their being confined : and if, for a few days, the ewe is shut up alone with her lamb in a close pen, and there held three or four times a day, that the lamb may suck, she will grow fond of it : and if, at the same time she is fed with green food, or shorts and water, her milk will increase. When a ewe has very little milk, or absolutely none, as sometimes happens ; or in case of the death of a ewe, a new milch cow, or a foster mother, are our only resources : and for breeders of valuable sheep it is but common prudence to be provided for such an

occasion. A cow can generally be procured, and very fine lambs may be raised in that way : but it is the least convenient, as the lamb when young must be held to the teat ; and even when sufficiently grown to suck, it must be attended while it sucks, lest the cow should kick and injure it. For these reasons a sucking bottle, prepared with a pipe, and a proper air vent, or what is still better, a foster mother is to be preferred : and when a ewe can be procured she may easily be made to take and become fond of the lamb, by covering the lamb for a few days with the skin of her own lamb : or by rubbing the lamb of the foster mother with asafœtida ; and when she has become accustomed to the odour, to rub the foster lamb in the same manner, and then change them. When it is wished to give the lamb two mothers, as is said to be the practice in Spain, and by which very fine lambs may be raised, either of these methods may be pursued. I have already mentioned Chancellor Livingston's boxes, by means of which lambs may be early taught to eat boiled oats, roots, cabbages or tender hay, which brings them forward very fast. It is of very great consequence to feed sheep well during their infancy, if we wish to fortify their constitutions against the diseases to which they are most exposed. From the want of abundance of food in the earlier stages of life, sheep are often feeble, and degenerate in some of their best qualities :

to this end, oil cake dissolved in water, or meal mixed with water, makes a very nutritious drink ; which should be given to them as soon as they can be taught to take it.

Mr. Laysterie mentions the practice of a Mr. Fink, a Prussian agriculturalist, who allows his ewes to be with their lambs only three times a day ; asserting that the lambs fatigue themselves by running about, and incessantly attempting to suck : and likewise that they refuse all herbage much longer whilst they are kept constantly with the ewes, than when in his way they are admitted to them only at intervals. Whilst separate, they are more quiet ; learn to eat grass sooner, thrive better, and are more easily and sooner weaned. When this method is pursued, an old ewe or two, or a weak ram or a wether should be kept with the lambs to guide and govern them. I cannot say I have actual experience of this practice, but our mode of fattening calves certainly recommends it.

Merino lambs, particularly those of the Infantado and Paular flocks, are frequently produced with a coarse hairy covering, and sometimes with their ears and legs, and large spots on different parts of their bodies, of a brown tawny colour. But no alarm need be entertained on this subject, such hair and spots will be succeeded within six months by wool of a beautiful white, and of the finest quality.

In Denmark, they wean their lambs at three

months old. In Piedmont, some are said to wean so early as 40 days : on the contrary, at Rambouillet, they let them suck five or six months. But very large lambs injure and weaken the ewes, and it is frequently seen that such lambs thrive faster after they have been weaned than before ; whilst the growth of such as are weaned so early as, or earlier than three months, will be thereby checked and impeded. We, therefore, prefer the fourth, or at latest the fifth month. Such lambs as have been accustomed to feed, may be weaned the earlier ; and by so doing, the ewe has more time to recover her strength and flesh before she goes again to ram. Whilst by the negligent practice of letting the lambs run with the ewes until they wean themselves, both the ewes and the lambs are injured. The lambs, by too long sucking, weary and exhaust the ewes ; and the ewes continually drive the lambs from the tenderest and sweetest pasture.

Weaning should be gradual, lest the udder of the ewe should be injured, and lest the lamb should be hurt by too sudden a change of diet. This is easily effected, by admitting the lamb to the ewe but once a day, for a very few days ; and after they are five, or at most six months old, the ram lambs should be separated from the ewe lambs, lest the rams become enervated by endeavouring to serve the ewes ; and lest some of the most forward ewes should be impregnated.

Castration should be performed when the lamb is about fourteen days old. When done much earlier, while the lamb is very weak and feeble, a due degree of inflammation may not follow. When it is put off, as is generally done in this country until the lamb is six weeks or two months old, it frequently runs too high; and from either cause, mortification and death may ensue. Two modes of performing it are common: one by making a longitudinal slit in the scrotum, drawing the testicle out, and scraping away the cord; the other, by cutting a small piece from the bottom of the scrotum, forcing the testicle through, and pulling it steadily until the cord gives way. The last is the best mode; and both will be rendered safest, and will be performed with less pain to the animal, by employing a keen instrument; with which too, the cord should be cut across in the first mode of performing the operation. The danger from hæmorrhage, which is the reason given for scraping the cord, is by no means such in a young lamb as to justify the more cruel mode of scraping. It is of more consequence to take the opportunity of mild weather. In a very cold or a very hot season, many lambs may be lost. When, therefore, it is necessary to perform it in the winter, the opportunity of a thaw should be embraced, and the lamb should be kept for some days in a comfortable sheep house. When in summer, the same, or some other shelter from the

heat of the sun should be afforded ; and at all times he should be kept as quiet as possible for a day or two.

All persons who are careful in raising a fine breed of sheep dock the tails, and many shorten the horns. Both operations rid the animal of a useless appendage, and are easily performed : that of the horns by a fine saw, when the lamb is about one year old : the tail may be cut off about two or three inches from the root, as soon as the lamb has recovered from castration. Some of the Merino sheep, especially of the hornless breed, have long crooked hoofs, which, unless sawed off once or twice a year, become extremely troublesome and inconvenient to the animal. I think I have found some injury to follow sawing them too short.

Every person desirous to make a flock of Merinos, by crossing the common sheep of the country with Merino rams, should be particularly careful to mark his lambs soon after they drop : at least, so soon as that the dam cannot be mistaken : that in future crosses no error may happen from ignorance of the grade of his ewes ; and that in selling, no deception may be practised on the purchaser. On this subject, Mr. Laysterie has given so perspicuous and easy a system, that I believe I cannot do better than to copy it, (as I have done many other useful hints and observations) from his book. If a flock of pure Merino sheep,

and another of the mixed breed be kept upon the same farm, it will be necessary, for the purpose of avoiding mistakes, to give all the individuals of the pure flock a permanent mark, by which they may be easily distinguished from the mixed breed: and to this end it may be best to adopt the Spanish method; that is, to apply a small heated iron to the face, leaving the impression of a letter or a number, which, being indelible, is the best mark of proprietorship. Of the mixed flock, every individual should be ear-marked, and two Roman figures, I and V will suffice for a series of numbers more than sufficient. The number I will designate the animal, as far as four inclusive; by making the proper number of slits on either ear. To make five, a portion of the ear is cut out, of the shape of V. The numbers immediately following are slit on either side the mark V; VI six, VII seven, IV eight, IIV nine. To mark ten, he begins with one slit on the other ear; and by combining these, we may go on to any number which may be required, according to the views of the proprietor; keeping an exact register of the mark and purpose for which it has been adopted.



Washing and shearing. The Spaniards scour the wool of the Merino after it is shorn : and Dr. Parry objects to washing the wool in the common way, on the sheep's back, both as dangerous to the animal, and in reality of little use to Merino wool ; the greasy yolk of which can be discharged, but in a very partial degree, by washing in cold water ; and the manufacturer will have nearly as much trouble in scouring the fleeces afterwards, as if it had not been done.

It must be confessed there is some risk in this practice of washing wool in the common way on the sheep's back ; and when immediately after

shearing, the sheep have been exposed to severe cold ; especially if accompanied by rain. Great numbers have been lost in this, and all cold countries : but these losses may probably be attributed, with good reason, as much to the depriving the animal under such circumstances of his warm clothing, as to the washing. As, therefore, we are likewise informed that the wool-buyers object to the wool being shorn unwashed, stating that they can form no just estimate of the real weight, unless the general custom of the country is observed : and as washing the wool in warm water, when performed by unskilful hands is frequently found to felt the wool into rolls, and injure its sale : and as it is not easy to turn the whole body of farmers from their usual practice, it may be best, at least for the present, to direct how it may be well done, and with the least risk, than to forbid the practice altogether.

Our mode is to wash the sheep in a running stream, sufficiently deep for a man to go with the sheep into the water up to his waist ; to plunge the sheep repeatedly into the stream, and then to rub the wool well in the water ; and finally, to press out the water, beginning at the head, and proceeding to the extremities. From the middle of May to the middle of June is the season ; and we are careful to seize the opportunity of mild and clear weather. After washing, and before shearing, the sheep should be kept two or three

days in a clean pasture, that the wool may become dry, and that the yolk may in some measure rise again, which renders the wool more soft and supple. In Sweden, some Merino breeders place the animal on his back, with his head up, in a large tub, wash him well with warm water, with a mixture of a small quantity of stale urine or soap-leys, and finally cleanse him in pure water. This appears to be an excellent practice ; is particularly recommended by Mr. Bakewell, and is said to render Spanish wool seven per cent. cleaner than by washing it in cold water ; with much less risk of being felted than when so washed, after being shorn.

In order to render Merino wool fit for the manufacturer, much more care and skill are necessary, and several processes are recommended for that purpose. But, as many of these are intricate, and some of them dangerous in the hands of unskilful persons, it is safest to leave them to the manufacturers ; contenting ourselves with cleansing the wool, so far only as will fit it for the market.

Shearing. This is a business which our farmers are too apt to hurry and slight. They seem more anxious to finish the work in a short time, than to do it well. But, besides, that close and even shearing adds to the weight of the present fleece, it is certain that the fleece of the next year will be the better and the weightier for it. Merino

fully kept asunder, lest the mixture of the coarser, should injure the sale of the finer wool.

This is likewise the proper time for selecting the ewes, and marking such as from age, or other defects should be drawn and sold off or fatted, from such as should be reserved for breeding. And a careful breeder will go farther, and take the opportunity for becoming more intimately acquainted with the properties of the individuals of his flock : so that in future, he may, by judicious combination improve his flock, and obtain animals more perfect and more profitable.

Immediately after shearing it is not only necessary to protect sheep from cold and wet, by exposure to which great numbers have been lost ; but if the weather proves hot and dry, the sheep should be put into pastures, in which they can have abundance of shade : and when this cannot be had, they should for a short time, during the middle of the day, have the shelter of a barn or sheep house.

Shearing Lambs. Some difference of opinion exists as to the propriety and advantages of this practice. Mr. Laysterie informs us that at Rambouillet, lambs shorn at six months, and again when they became two-toothed sheep, yielded less wool, and of an inferior quality than when the fleece was suffered to remain. On the contrary, Mr. Ivard's experiments give a small advantage to the shearing of lambs ; and Mr. Hunt assures us, that early lambs may be shorn to advan-

tage about the end of July : that they improve much, soon after shearing ; are more cool and more comfortable ; get rid of ticks ; rest and feed with less disturbance : that by winter, they acquire a sufficient fleece for their defence, and at the following shearing yield a fleece nearly as heavy, more regular, and of a better quality. And Mr. Pictet, in a letter to Lord Somerville informs him, that some good husbandmen clip from the surface of their lambs' fleeces, about one or two lines in length, so as to procure about half a pound of wool from each ; that the growth of the remainder is accelerated thereby, so as to give a heavier fleece the next spring, upon the same principle that hair grows more vigorously after occasional cutting.

One of my neighbours has been in the practice of shearing his Merino lambs for two years past ; and from his own experience confirms the above observations. I sheared near one hundred lambs at the last shearing, and they certainly look as well this spring as those which were left unshorn. If, therefore, this practice shall be found no ways detrimental to the sheep, the profit recommends it ; as this wool sells readily to hatters, at a good price.

Wool. Fine and soft wool, of a regular and even fineness of pile, and of equal strength the whole length of the staple, exceeds in value such as is coarse, hard and unequal, or as it is called

jointed in the pile, to so great a degree, that Mr. Robert Bakewell, a gentleman, who from early life has been engaged in the wool business, and is consequently well acquainted with the subject, has thought it of sufficient importance to make it the subject of a very ingenious essay, addressed to Lord Somerville, so lately as the year 1810. He asserts, that taking two packs of wool, of the same apparent fineness, one possessing in an eminent degree the soft quality, the other of the hard kind, the farmer will from the first, with the same expense to the manufacturer, make a cloth, the value of which shall exceed the latter full twenty-five per cent. Every means, therefore, which can contribute to give to our wool these estimable qualities should be known and pursued. The first and most important of these no doubt is, the introduction of the Merino, the best and most valuable breed of fine-woolled sheep known ; and the improvement of his fleece, as well as that of his descendants, by judicious breeding and selection. But besides these, some other circumstances and attentions in the management of sheep are said to contribute so greatly to this end, that they deserve to be particularly considered.

Mr. Bakewell, just mentioned, strongly recommends the practice of greasing and salving sheep, as is done in Scotland, Northumberland, Yorkshire, and some other northern counties of England ; as giving to wool that soft and silky feel, so

highly valued ; and which of late, since it has been better understood, and more justly appreciated than formerly, has given a decided preference in the market to some native English wools which possess it ; and to cloths manufactured from them, over wools of superior fineness which do not. This superior degree of softness in some kinds of English wool, he attributes to the practice of salving and greasing ; and assures us, that from this circumstance, some of the fine wools of Northumberland and Yorkshire have acquired it, in a superior degree to any ungreased wools in England : so that cloths made from greased Northumberland wool had been sold as cloths made from good Spanish wool. That they equalled them in texture and softness, and surpassed cloths made of ungreased wool, equally fine, by at least thirty per cent. He adds, that this practice not only renders wool softer, but actually finer ; observing that the line of distinction made by the stain of the ointment, (in which tar is generally an ingredient) being very perceptible, affords an opportunity to compare the bottom, to which the ointment had been applied, with the top, which had grown before its application, and that the bottom is found to be not only softer, but actually finer.

Other good effects of this practice are, that it preserves the wool, as well as the sheep, from the injurious effects of heat, and cold and wet ; that

it prevents the scab, and destroys ticks and other vermin to which sheep are subject. Shorn wool, kept long, in a very warm and dry temperature becomes indurated and elastic, and acquires the properties of hard wool: the greater the degree of warmth the more speedily will this effect be produced. But even in a moderate temperature, wool which has been shorn for three or four years will neither spin nor felt so well as that which has not been kept above one year. Even a very hot and dry season is found to impede the manufacturer, and to lessen the value of cloths made during its continuance.

Lord Somerville agrees with Mr. Bakewell, in attributing similar effects to heat, upon the growing fleece, particularly soon after shearing. Cold and heavy rain, by checking the natural secretions, and washing off the yolk to a certain degree produce the same effect: and for these reasons the Swedes and Saxons clothe and house their sheep in winter, and drive them into the shade of trees, or of their sheep houses, for some hours in the middle of the day, during their short and ardent summers. Nor is it improbable, that to the equal temperature which is thereby obtained, any good effect which may result from the Spanish practice of driving their sheep in spring to the northern mountains, and in fall to the southern plains may be justly attributed. It is partly to remedy the ill effects of heat, cold and wet, that the far-

mers of Scotland, and the northern counties of England, have from time immemorial been in the practice of greasing and salving their sheep. But they have done this, rather with a view to the preservation of the health of the animals, and to free them from the troublesome vermin with which they are infested : and until lately, the effects on the wool have been overlooked. From which circumstance, the ointment has been so unskilfully composed by an undue mixture of tar, as to injure the colour of the wool, and render it very difficult to clean ; so as to render it unfit for the brighter dyes, or for cloths intended to be finished white. But of late, the matter is better understood ; and the most intelligent farmers are convinced that it adds to the quantity of the wool, and renders it softer and finer, at the same time that the health of the sheep is preserved.

Of the superior warmth which the sheep enjoy from this practice, a proof, it is said, may be seen on a winter day, when the fleeces of the ungreased sheep will frequently be found whitened over with snow, or hoar frost, whilst those of such as have been greased, remain free and uncovered. To these facts and opinions Lord Somerville gives his assent, and recommends the practice, provided a substitute can be found for the tar, which stains the wool so as to limit its use to coloured cloths.

The ointment used in Northumberland is pre-

pared by putting 20 pounds of butter over the fire, and when melted, to add one gallon of tar, stirring the mixture until the two substances are well incorporated into a soft tenacious ointment. But so great a quantity of tar is found to stain the wool. Mr. Bakewell, therefore, proposes to add a proportion of bees-wax instead of it. The expense of this may be lessened, by the addition of some tallow ; which, with a small quantity of wax, will give to the ointment all the tenacity required. And all the salutary effects of the tar, as a remedy for the scab, and a poison to the tick and other insects, may be procured by the addition of one eighth of the whole of spirits of turpentine.

These changes are particularly necessary when the ointment is applied to Spanish sheep ; which, although they abound in a natural yolk, which renders it less necessary, still receive so much benefit from it, that both Lord Somerville and Mr. Bakewell recommend it, particularly to be applied immediately after shearing, as a defence at this season of nakedness against the ill effects of heat, cold, or wet, as well as a remedy against the tick. At this time, the ointment being rather thin, may be well rubbed all over, and into the fleece : but in the fall, when the wool is longer, more pains are necessary.

At this latter season, if the ointment is merely rubbed on the wool, it collects on the top of the staple, attracts and mixes with the soil, and par-

ticularly if there is any tar in the composition, injures the wool, by rendering it very difficult to cleanse. The proper method then, is to divide the wool with one hand, and to apply the ointment to the skin with the finger of the other ; by which means it is kept constantly soft by the warmth of the skin, and equally diffused through the fleece.

Besides the fineness of the pile, and softness to the feel, wool, to be truly good, must be composed of fibres of equal strength and thickness throughout their whole length. Such wools as are defective in this property are termed unsound, and are found to be really thinner, as if jointed in some part of the fibre : which circumstance greatly lessens the value to the manufacturer. This fault is attributed to occasional ill health in the sheep ; to exposure to heat, wet and cold, and to irregularity in feeding : being suddenly transferred from very poor, to very rich pasture : from starving, to abundance of food ; and vice versa, the remedy is to keep the sheep constantly in good store order : their fleeces should be covered with the natural yolk, and when that is deficient, it should be supplied by art. The sheep should be kept dry, and protected after shearing from the ill effects of extreme heat, by the application of a soft unguent.

Wool is likewise much injured by the capsules of the seeds of certain plants ; such as burdock, marsh marygold, &c. which are furnished with

small hooks, by which they lay hold of, and entangle themselves in the wool, so as not to be removed without much pains and some loss. The best remedy against this evil is clean pastures ; and any person who keeps a flock of fine-woolled sheep, will find he will be well paid in the cleanness of his wool, for the expense of weeding all such plants out of his pastures.

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CHAPTER IV.

Wounds--Imposthumations--Ulcers and fractures
—Hunger—Lax—Pinding in lambs—Diar-
rhœa—Dysentery--Braxy—Rot—Scab—Ery-
sipelas—Vermin—Hove—Foot rot—Sturdy
—Staggers—Claveau or sheep pox.

Diseases of Sheep.

OF the most simple complaints, such as wounds, bruises, and fractures, a healthy sheep so soon recovers, that farmers are too apt to neglect them altogether : but by so doing, a simple wound may degenerate into an ulcer, a bruise may imposthume ; and although a broken bone will knit, the animal suffers great pain, and will probably have a crooked limb ever after.

With regard to fresh wounds, so much care only is necessary after cutting the wool from the edges, as to clear them from dirt, and any other foreign substance : to bring the edges together and keep them so by a bandage where that can be applied, or by a strong sticking plaster, which may be made of shoemaker's wax ; or when the wound is very large, by a stitch or two taken deep into the flesh, which can be made only with a surgeon's crooked needle. It should then be covered by a plaster made of equal parts of black pitch and

bees-wax, with double the quantity of mutton suet, merely to defend it from injury ; and in the summer season, from the access of flies.

A bruise should be washed with hot vinegar, with the addition of a little spirit of turpentine ; which should be repeated two or three times a day, until the swelling and pain subside.

A fracture should be bound up neatly, with one or two splints, covered with tow ; in such a manner as to fill up the hollows of the limb, and to prevent the hard wood pressing on the tender part. In doing this, no other care is necessary than to keep the broken ends of the bone opposite to each other, and not to apply the bandage too tight, which it always is, if the limb swells in a considerable degree.

Imposthumations should be opened, as soon as they grow soft ; and as well as ulcers, should be kept clean by washing with warm soap suds, and covered with a pledget of tow, spread with an ointment made of equal parts tar, mutton suet and hog's lard ; with the addition of a little wax, in the summer season. When the bottom of an imposthumation looks pale, or of an ash colour ; when it discharges a glary matter, and particularly if the matter is offensive, it has become in some measure an ulcer, and should be treated as such. After washing it with soap suds, and drying it well, cover the bottom and edges with lint, which has been soaked in a solution of Roman vitriol,

(blue stone) or the surface of the ulcer may be rubbed with the vitriol itself, and then covered with dry lint, and a pledget of tow, spread with the above tar ointment. This mode of dressing must be continued daily, until the ulcer assumes a florid red colour, and discharges a white, or yellowish matter, which is no longer offensive. After which, it is only necessary to keep it clean, and to dress it simply with the tar ointment.

We frequently hear farmers complain of being unlucky with their lambs : they have lost a great number. But in this case, as in too many others, misfortune generally originates in misconduct ; and nine times out of ten, if a farmer does not raise as many, or very nearly as many lambs as he has ewes that lamb, we may conclude his ewes have not been well fed, or his tender lambs have been exposed to the severities of cold and wet, without shelter and without litter : although a very tender, a lamb is really a very healthy animal, and if well fed and well sheltered, is seldom lost.

A lamb perishing from hunger appears hollow at the flanks ; has a weak and mournful cry ; is apt to follow any sheep that comes near it ; and is either neglected by its dam, or if it attempts to suck her, she springs forward and will not suffer it to take the teat. As soon as these circumstances are discovered, the ewe and lamb should be confined ; the teats of the ewe should be exam-

ined, and if her nipples are found to be sore, they should be anointed with a soft cerate, made by melting a little bees-wax with twice the weight of hog's lard, or fresh butter: or if the ewe has little or no milk, she should be supplied with plenty of nutritious and succulent food, such as roots, wheat-bran, or shorts and water, ground oats, or Indian meal mixed with water: and whilst by these means we are attending to the ewe, and endeavouring to increase her milk, the lamb must be supported by the milk of another ewe, or that of a fresh cow. It is a general, and I believe a well founded opinion, that the milk of a farrow cow, or one that has calved long before, is injurious to lambs and will destroy them.

Lambs, whilst very young, are particularly exposed to two complaints, a purging, which will be relieved by a tea spoon full or two of fine chalk, and as much gin, mixed with a little milk, given twice a day: to which, if the disease proves obstinate, add one, two, or three drops of laudanum, according to the age of the lamb: again, when the ewes are first put to grass, lambs are apt to be attacked with a purging, which, however, seldom lasts above a day or two, and then subsides; leaving them in better health than it found them. If, however, it should continue longer, and the lamb should appear to fail under it, it will be relieved by the same chalk mixture.

The disease called *Pinding* in lambs is the ef-

fect of a purging with viscid excrements, by which the tail becomes so glued to the buttocks as to prevent the escape of the excrement. It is the fault of the shepherd if it ever amounts to a disease, because a very little attention will prevent it. As soon as any tendency to it is discovered, let the parts be well cleaned, and then rubbed with a little powdered clay or chalk.

Scouring. Old sheep, when first put to grass, especially on moist pastures, which have been flooded during the winter, are very apt to be attacked with diarrhœa. The best preventive of this complaint is to put them from dry food, upon a piece of rowen, which has been shut up from the first months of the preceding fall; where they will find a mixture of dry and new grass, which will prevent the consequence of too sudden a change. Where this has not been provided, they should be brought up once a-day, and given a little hay or grain. Where, notwithstanding the disease comes on, it is generally of little consequence; or when obstinate, may be relieved by the chalk mixture, increasing the dose to a table spoon full of chalk and of spirits, and five or six drops of laudanum: and if this should prove ineffectual, boil four ounces of chipped logwood, in three pints of water, for ten or fifteen minutes, and give the chalk mixture, each time in a gill of this decoction.

Sometimes we are informed that sheep are at-

tacked with a true *Dysentery*, which is distinguished from a simple lax or diarrhœa by mucous and bloody discharges, mixed with lumps of hardened excrement ; by frequent urging, and straining to stool, with small evacuations ; and is accompanied with pain, a greater degree of sickness, dejection and fever, manifested by a hot skin, ears and mouth. It occurs most frequently in midsummer, and towards the fall of the year, and is said to be infectious. In this case, begin by purging the sheep with an ounce of glauher salts, dissolved in warm water : or rather in violent cases, by bleeding (which is best performed after shaving off the wool, in the jugular vein, as is done in horses and neat cattle. After swelling the vein by a bandage, open it with a common lancet ; and after drawing a sufficient quantity of blood, which from a full grown sheep should be towards a pint : the blood is stopped, and the vein secured by a pin and hair, or thread, as is done in the larger animals) then give the salts ; and having procured a free and open state of the bowels, give the chalk mixture ; interposing occasionally, as long as the pain, fever, and bloody evacuations continue a dose of salts, or what I have frequently found a mild and gentle evacuant for sheep, give a large table spoon full of molasses, mixed with one or two of yeast or emptyings. This remedy is particularly adapted to dysentery, which is frequently a putrid disease, and may be freely

used, as long as the pain, fever and bloody evacuations continue ; after which, the chalk mixture, and decoction of logwood and laudanum, will do all that can be done towards a cure under a complaint of this nature. Sheep, ill of this disease, should not be allowed to drink too freely of very cold water ; instead of which, a pint of thin gruel, made of buckwheat, oat or Indian meal, and sweetened with molasses, given two or three times a day, will at once supply the place of necessary drink and proper food.

Braxy. Sir George M'Kinsey, describes dysentery and braxy as the same disease. But Dr. Duncan describes another disease under the name of braxy, which appears to be a violent inflammation of the bowels, unaccompanied with dysenteric symptoms. In both, the remedies, especially in the first stage, are much the same : bleeding, purging and a cooling diet : with this difference ; that in the dysentery, bleeding is seldom necessary more than once in the very beginning of the disease : in the inflammation of the bowels, it is the only remedy to be depended on, and must be repeated at short intervals, as long as the violence of the symptoms continues.

Of the *Rot* we know but little. Some of the Spanish sheep imported last fall brought it with them ; as was proved by the fluke insect found in and on their livers. This disease is almost certainly fatal ; but it is not infectious, and as from

the happy effects of our climate and pastures we have heretofore been free from it, we may hope again to get rid of it. It is said to be brought on by sheep feeding on cold wet soils, and particularly flooded grass ; to be prevented, and now and then cured by sound pastures, dry food, grain, and some cordials, such as porter and milk punch. The poke, a watery swelling under the throat, is a symptom of the last stage of the rot, and follows the course of that disease.

The *Scab* is another disease, of which, compared with our present experience, we may be said heretofore to have known but little. It is manifested by the infected sheep rubbing itself against posts and trees, and biting its skin, to allay the itching ; the wool loosens from the infected part, hangs out from the fleece, and the skin beneath is found to have a red fretted appearance, is rough and scabby. It very much resembles the itch in the human body, is equally infectious, and is cured by the same remedies. It is to be distinguished from that falling off of the fleece in large parcels, which is frequently seen among our poor sheep in the spring of the year, soon after they begin to get plenty of food ; as well as from another disease which we have seen among the Spanish sheep lately imported, with ragged fleeces, and hides almost bare. I have seen many such, which had not the scab, and which, I believe had suffered in consequence of heat, confinement and fe-

ver: changing the natural secretion of the skin from a soft greasy yolk, to a dry filthy scurf, injuring the wool, and still further, obstructing the perspiration until the animal, especially in the winter season, becomes dangerously diseased.

It is safest, however, not to neglect either of these cases; and where there exists the slightest suspicion of scab, to treat it as such, lest it spread into the flock, to our great annoyance, and we pay severely for a very trifling neglect. And it fortunately happens, that the remedy recommended by Mons Daubenton, for the scab, which is composed of oil of turpentine, mixed with four or six times its weight of train oil or hog's lard, is healthy for the sheep, and beneficial to the wool, as likely as any other to dissolve the hardened yolk; and by its kindly warmth promote a more healthy secretion from the skin. The affected part being first freed from the wool, and scratched with the finger until the scab is removed, is to be well rubbed with this ointment. This being repeated once or twice in the course of a week, will always palliate the symptoms, and may cure slighter cases of scab. But in the more severe cases, such as we have lately seen, I know, from undoubted experience, that it will not cure the scab in the winter season. Although, therefore, I would always recommend it during winter as a palliative, it is not to be depended on for the perfect cure; and as soon as the spring

advances, so as to render them safe, more effectual remedies must be resorted to.

In such cases, therefore, as soon as the weather will permit, let the wool be shorn off, and the whole body of the animal be thoroughly cleansed, (especially all the parts infected) by scrubbing with a brush and warm soap suds, in every gallon of which, about four ounces of the fresh roots of white hellebore or sharp-pointed dock, or two ounces of dried tobacco stalks have been previously boiled. The wool being suffered to dry, every infected part is to be well anointed with the following ointment.

Take corrosive sublimate, four ounces ;
hog's lard, ten pounds ;
mutton suet and
rosin, of each, one pound.

Dissolve the corrosive sublimate in strong spirits, by rubbing them together in a glass mortar, pouring off the solution, then adding more spirits, until the whole is dissolved ; then having melted the lard, suet, and rosin together, suffer them to cool, until they begin to thicken at the sides of the vessel, and add the solution of the sublimate gradually to them, stirring the whole continually until cold, so as to blend them very uniformly together. Where rosin cannot be procured, bees-wax may supply its place ; the use of either, as well as of the suet, is to give consistence and tenacity to the ointment in hot weather.

This ointment combines all the advantages of Sir Joseph Banks's more expensive mercurial ointment, and is rather easier to make than that of Sir George M'Kinsey. Either will effectually cure the scab, and seldom require to be repeated above twice or three times : once will often answer. But the scrubbing and washing with the soap suds, made of the decoction, of white hellebore, dock root, or tobacco, is essential to the success of either. Of these, the hellebore, where it can readily be procured, is the cheapest and most effectual ; and made use of with the following cheaper ointment, as below directed, will commonly do all we wish.

Boil twenty pounds of the roots of white hellebore in half a hogshead of water, and having shorn the sheep, wash them and scrub them with a brush thoroughly with this decoction, whilst they stand in a tub ; then squeeze out the wool and turn them out. As soon as they are dry, anoint them universally with a mixture of tar and hog's fat, in the proportion of one gallon of tar to 20 lbs. of hog's fat. This is a most excellent practice ; protects the sheep from cold and wet after shearing ; contributes to the growth and the softness of the wool, frees them from vermin, and contributes to their general health.

During the summer season, and indeed at all times, the flock should be occasionally examined, and the slightest appearance of scab attended to :

and wherever the wool appears to loosen, let it be taken away: let the part be washed with the decoction of hellebore, dock root or tobacco, and anointed with the ointment, with corrosive sublimate.

Red Water and Erysipelas are eruptive and inflammatory diseases of the skin, attended with heat and fever. They probably are the same disease under different forms, and are cured by cooling purgative medicines, such as flowers of brimstone, mixed with molasses, in the proportion of two ounces of the flowers of brimstone to four large spoons full of molasses: to which, if the disease is violent, add half an ounce of salt-petre. This will make eight doses, to be given in half a pint of warm water, night and morning, so as to occasion a moderate purging, and is to be occasionally repeated as long as the disease continues.

Vermin. Sheep are infested with several kinds of vermin: the common tick, maggots, &c. The lean and young sheep are most exposed to these complaints. Smearing, as recommended on the subject of wool, is the best preventive; and washing with decoctions of sharp-pointed dock, tobacco, or white hellebore, (itch root) which is best done immediately after shearing, is generally fatal to them. Maggots are the consequence of fly-blows upon wounds. They are avoided by dressing with tar ointment, and removed, by washing the part with either of the above decoctions. Indeed,

cleanliness and moderate attention will prevent most of these complaints.

Hove. Sheep, as well as cows and oxen, are apt to be hoved, as the farmers call it, upon being put on moist succulent grass, particularly red clover. In this complaint the new grass floats upon the contents of the first stomach, so as absolutely to close the upper orifice. Fermentation soon begins, and a great quantity of air is extricated, which being pent up, swells the animal to a great size, particularly on the left side, just forward of, and below the hip, where the paunch in ruminant animals is attached to the integuments.

Several remedies are prescribed for this complaint ; all of which tend either to absorb or give vent to the confined air. But such only as let out the air are to be depended on. To this end, we are directed to drive the animal about ; to throw it suddenly into water ; to plunge a pointed knife into the paunch just below the hip, or to break the cake of grass, which prevents the escape of the air, by thrusting down the throat, quite into the stomach, a flexible rod, which may be made of a piece of grape vine, on the end of which is a small knob, which being covered with leather, and well greased, may be used without any apprehension of danger : it no sooner reaches the stomach than the air pours out abundantly, and the animal is entirely relieved. It is therefore to be preferred to any other less efficacious, or more hazardous

remedy. This complaint will sometimes kill an animal in a few hours : no time, therefore, should be lost in trifling attempts ; nor should the animal be left until perfectly relieved.

Foot Rot. This is one of the diseases of sheep, with which, I believe, we were totally unacquainted, until it was brought to us, among the sheep imported last fall ; but as it has since occurred in two flocks of some of those sheep in my neighbourhood, besides my own, it cannot be doubted but that it has already, and probably will in future, appear in many others. It is one of the most infectious diseases of sheep ; and although when early attended to, neither dangerous nor difficult of cure, yet when neglected in the beginning, becomes so in a great degree, and spreads with great rapidity through a flock.

Its first, and most evident symptom is lameness. Wherever therefore, there is the least reason to suspect it, every instance of lameness, as soon as it occurs, should be carefully examined.

In the first stage, and mildest species of the disease, the animal appears no otherwise indisposed than as it is a little lame. On examining the foot, a slight redness appears round the hoof, at its junction with the skin ; whence, or from the skin, between the hoofs, a small quantity of offensive matter oozes, and the foot itself, feels somewhat heated ; but no other symptom of fever occurs.

In the second stage or species, the disease is

deeper seated, under and within the horn of the hoof; the animal appears to be in more pain, the lameness is greater, the foot is much hotter, the animal is dull, loses its appetite, and is manifestly feverish; and frequently so lame as to feed on its knees. This stage is frequently, though not always in its commencement, accompanied by a manifest ulceration in the division of the hoofs, or at the junction of the horn to the leg; and the matter discharged is very offensive.

In the last stage, which is generally the consequence of neglect, imposthumations are formed within the hoof; the bones are attacked and become carious; the discharge is abominably offensive, fever, and every symptom of general disease are greatly aggravated.

Fine-woolled sheep are said to be most subject to this complaint. It is attributed to moist pastures, to cold dews, in the fall of the year; frequently attacks sheep after long journeys, is very infectious; and unless great care is taken, by separating the diseased immediately from the healthy, spreads rapidly through a flock. As this disease is undoubtedly very infectious, sound animals must be immediately taken to uninfected pastures, nor suffered to return to the fields on which the disease has appeared, until they have been cleansed by frequent rains; and in winter, separate folds must be provided for the infected and the healthy.

Cure. As soon as the disease is ascertain-

ed, examine carefully whether it exists within the hoof. This is discovered by pressing the hoof all round, below and above; from which, if the animal winces, and discovers pain, we may conclude that beneath, the foot is diseased: and the first measure to be taken is, by carefully paring away that part of the hoof, to afford a discharge to the confined matter. This will be much facilitated by dipping the foot repeatedly into water, as hot as can be borne without scalding: and from time to time, carefully paring the hoof with a sharp knife, until it is perforated so as to let out any matter which lies beneath. This partial scalding contributes likewise to the cure of the milder species of the disease, which exists only at the edges, or between the hoofs: and even when the inflammation has commenced beneath, it will frequently check it, and prevent the formation of matter.

In the next place, let the foot be carefully cleansed from all offensive matter, wiped perfectly dry, and the surface of the ulcer destroyed by washing the part in the milder complaint with a strong solution of sugar of lead in vinegar, or a strong solution of white vitriol. Where the disease is more malignant, or has made greater progress, more caustic applications are necessary; such as the ley of wood ashes, which has been rendered caustic by slacking in it quick lime, a strong solution of Roman vitriol, or a mixture

of oil of vitriol, diluted with twice its weight of water; or what perhaps is better, with the same quantity of sweet oil, or train oil. These should be put on with a feather, the part covered with a pledget spread with tar ointment, Gowlard's cerate, or mercurial ointment; the whole kept on by a linen cloth and moderate bandage. After this, the animal is to be kept quiet for some days, during which the foot is to be daily dressed in the same way, until the sore appears clean and sweet, and then only with the ointment until it is healed: of which we must be well assured before we turn the sheep back again to the flock.

Sturdy. It is supposed we have this disease, occasionally among us, though I believe it never has been proved by actual dissection. A sheep attacked with it ceases to improve, becomes dull, and separates from the flock, its sight appears to be impaired and indistinct; the eyes glare, the animal sometimes becomes blind, starts at any noise, runs furious without aim, loses the power of standing, and is perfectly emaciated.

The cause, discovered by dissection, is found to be a collection of water: in the milder species of the disease, in a bladder on the top of the brain, near the skull; over which the skull is found to be remarkably soft, so as to yield to the pressure of the finger. In the more fatal species, the water is collected in the natural cavities, or in the substance of the brain itself. The only cure is to let

out the water, either by puncturing the sack, through the soft part of the skull with an awl ; by opening the skull, as in the operation of trepanning, and taking out the sack ; or by what is averred to be the safest and most certain, though unquestionably a very singular remedy, by passing a stiff pointed wire up each nostril, through the base of the skull and the whole substance of the brain, until it can be felt by the finger, over the soft part, on the top of the skull. After which, although the sheep should lie as dead for many hours, it is said frequently to recover. It cannot be, but that an operation of this nature, in which the whole substance of the brain is perforated, must frequently prove fatal. But as the disease for which it is recommended is of itself necessarily fatal, unless relieved in some such way, it is only necessary to ascertain the disease to justify the attempt. Where, however, the soft part of the skull can be discovered, the operation of trepanning is more safe, but requires more skill ; and where no such part on the skull can be discovered, it can be of use only by chance.

Giddiness, Staggers. Another disease, under these appellations, is described by many writers, which, in its symptoms, very much resembles sturdy, but which arises from a very different cause, and yields to different remedies. This I suspect to be the disease described by Professor Daubenton, under the name of, and attributed by

him and Mr. Mills to the effects of *heat*; and by Chancellor Livingston and many others under that of staggers or dizziness. It is by all the writers I have seen, except Chancellor Livingston, attributed with great probability, to plethoric fullness of blood; which, although it may occur at any season, is most likely to produce its effects in hot weather, and yields to bleeding, and other evacuations. What induces me to suppose the disease so accurately described by Chancellor Livingston to be this disease, more than sturdy is, that his cases yielded simply to patience and attention; which are much more likely to cure a disease arising from plethora, and a partial determination of blood to the head, than one which like sturdy is proved to arise from water, confined in a membranous cist: which we know from what occurs in the human body to be a class of diseases seldom, I believe I may say never cured, but by evacuating the water and destroying the cist. If these sentiments are just, it becomes of consequence to distinguish these diseases from each other by some decided mark. I confess I cannot do this from experience, never having ascertained the disease called sturdy by dissection; although I have in several instances met with that called staggers; some of which proved fatal, others were cured, as in the case of Chancellor Livingston, by time and patience. But, arguing theoretically, from the nature of the causes, I should sup-

pose the staggers to attack suddenly, the sturdy to come on more gradually : convulsions, other violent symptoms and sudden death, more frequently to occur in staggers, than in sturdy. The only decisive mark is the softness on the top of the skull, which is described in sturdy, but never occurs in staggers. But, as this symptom is said not to occur in every instance of sturdy ; where it does not, much doubt must attend our decision : for water in the ventricles of the brain will always be attended with more violent symptoms and more sudden death, than where it presses on the outward surface ; as it does in all those cases of sturdy which are accompanied by the softness on the skull, and in which I believe trepanning or wiring, to be the only remedies : and as in this case, it can be easily performed, trepanning is unquestionably to be preferred.

Claveau, Sheep Pox. Of this fatal disease I have had but too much experience. It was brought to me last fall in a small flock of twenty-five sheep, purchased by Messrs. Murray and Sons, from Mr. Havens ; and about the same time was brought to my neighbour, Mr. Broom, in a number of very sickly sheep, sent to him by Mr. Vigars, of New-York. Of those sent to me, three died before I received them ; and soon after several more, before I suspected any other complaint than the scab, and other consequences of confinement during their voyage from Spain. At

length I discovered a black ragged scab on the cheek of one ; and on examining it carefully, I found beneath a foul stinking ulcer, which had eaten partly through the cheek, and was spreading in every direction. On examining the rest of the flock, the same complaint, but in a less degree, was discovered on five or six more. A corrosive wash, composed of the vitriolic acid and water, and another of a solution of Roman vitriol, well rubbed into the very bottom of the ulcer, so as completely to destroy its surface, soon sweetened the discharge, and gave the ulcer a healthy appearance : by this several were cured, but notwithstanding all the care I could bestow on them, several also died. While this was doing, and while at the same time I was rubbing one of the sheep with Mr. Daubenton's remedy, (*spirits of turpentine a. d grease*) to cure it of the scab, I discovered on the back of one, several tumours, about the size of a sixpence, from which the wool had fallen off, and which on being pressed, discharged from a very small opening, a whitish matter, so thick as to retain the form of a small worm. The same tumours were after this discovered in several other sheep ; and it was these which first excited a suspicion of the nature of the disease. Whilst reading Laysterie's account of the introduction of fine-woolled sheep into Europe, I remarked his description of the mode of procuring matter for inoculating for clavel ;

by pressing the tumour with the finger, and forcing out the matter, in order to take it on the point of a lancet. I now visited Mr. Broom's flock, where I found the disease in a more recent state ; and on comparing what I there saw with the appearances in my own flock, and with a most full and accurate description of the disease, published in a treatise on cattle, by Mr. John Mills, London, 1786 : no farther doubt remained. We had introduced into our flocks the *claveau*, *sheep pox*, a disease in many respects resembling, and equally infectious with the small pox, in the human species. The first idea was to stop the infection, by carefully separating the sick from the healthy sheep ; which we found, as I believe it always will be found, a vain attempt, as far as it regards those sheep with which the infected have run, even for a short time : but which, on the other hand, has proved a perfect and complete protection for such flocks as have not actually run together ; even where the distance dividing such flocks was so small a space as a narrow lane of two rods wide. I have kept all this winter and spring a flock of half-blood, which have had no greater separation than such a lane ; and whilst every sheep and lamb in my sick flock has had the disease, not one of either in the other has taken it ; nor has the disease appeared in any of my neighbours' flock, nor in those of Mr. Broom's neighbours.

The sheep pox commences by a heavy, watery,

and slightly inflamed eye, some swelling of the lips, and a discharge from the nose, very soon succeeded by an eruption round the mouth on the edges of the lips, and particularly at the corners of the mouth. In some instances of the mildest species of the disease, these have been all the symptoms which have appeared. The eruption has dried into small black scabs, which have fallen off in eight or ten days, and left the sheep quite well. In the next degree of the disease, on examining the sheep, an eruption of various size and shape is found on the inside and naked parts of the thighs and belly ; some of the pustules are small and round, others broad and flat ; and some are likewise discovered under the wool on different parts of the body. These pustules grow yellow on the tops, and discharge a small quantity of matter, which dries into a blackish scab. Still this is to be considered as the mild and distinct species of the disease, and is attended with no great danger. The confluent and malignant species of the disease commences with a more violent inflammation of the eyes, a more manifest and considerable swelling of the lips, and a greater and more purulent discharge from the nose. The eruptions on the naked parts of the body are very numerous, broad and flat, of a reddish brown, or purple colour ; and are likewise discovered under the wool, on every part of the body. The animal appears very sick, dull, and

stupid ; and refuses food, partly from loss of appetite, but more evidently from the soreness of its mouth ; on every part of which, tongue, gums, and on the inside of the lips, the eruption is discovered. Of these malignant cases some have died in twenty-four and thirty-six hours : others have struggled through eight or ten days, and a few, but very few, have recovered. Between these grades of mild and malignant clavel, the variety has been almost as great as the number of animals seized. But neither in the confluent, or mild species, was any high degree of fever manifested by hot feet, ears, or mouth ; which, in general, were rather below their natural degree of heat ; and in some of the worst cases, were actually cold. Nor did the breathing often become quick and laborious until very near the fatal termination of the disease.

Of the lambs, some were seized within three days after birth, so that I believe they must have brought the infection with them : others were not seized until they were eight, ten, or fourteen days old ; and I thought evidently took the disease from the older and more early infected lambs.

The little animals, in general, appeared to droop for a day or two ; and then the first symptom, as in the older sheep, was an inflammation of the eyelids and lips. This was soon followed by the eruption, which appeared very thick and florid on the inside of the thighs, and other naked parts, and could be felt on every part of the body.

From day to day the number of the eruptions appeared to increase, and to collect in large clusters, particularly about the neck, throat and jaws; by which, although the lambs retained an appetite for the teat, they were at length prevented from sucking. In a few of the old sheep, although the eruption was very numerous, the maturation of the pock was perfect, and in general, such recovered. But more frequently it was very imperfect in the old sheep; and in the young lambs, I saw none that matured at all, where the eruption was general over the body; and all such died. But where the eruption was chiefly confined to the mouth and pudenda, a kindly maturation took place and they recovered. Upon the whole, this disease proved fatal to more than one third, nearly half of the old sheep; and to three fourths of the lambs which were attacked.

The relics of this disease, like those of the small pox, are various and terrible. I have already mentioned the putrid and corroding ulcers about the mouth. Some had imposthumations, especially about the head, which on being opened, discharged a greenish and offensive matter; but the eyes most frequently suffered; the ball of the eye itself imposthumating and bursting, and this symptom attended and followed some of the milder cases: in one, a fine full-blooded ram, no other symptom was discovered.

Treatment. It will readily be conceived that in a disease of this nature, no more than in the

small pox in the human species, nothing like cure can be attempted with success ; if by cure is meant to put a stop to the progress of the disease. Like all diseases of this kind, it must, and will run through its stages : and all that can be done is by a well regulated diet, and by attention to the state of the bowels, and attempting to mitigate any violent and untoward symptom, to conduct the animal safely through it. At first, as I have said in the hope of stopping the spread of the disease, every sheep that was attacked was immediately and carefully separated from the flock ; but soon finding this a vain attempt, it was abandoned ; and those only which were more seriously attacked were taken to my hospital, that they might be more particularly attended to. The milder cases were left in the flock to common treatment and common food ; except, that instead of corn, the whole flock had bran and water with hay. Those that were taken to the hospital had chiefly roots and bran ; and those whose mouths were so sore that they could not eat hay, or even roots, were supported on gruel, given three or four times in a day by means of a bottle. The only medicine given, was brimstone and molasses, yeast and molasses, and in some cases, a little nitre. Sore mouths were constantly cleansed with vinegar and water ; and when they began to ulcerate, with one of the caustic solutions mentioned above. In a few of the worst cases, mer-

curial ointment was rubbed freely under the axillæ and on the thighs. To two or three I gave calomel freely, to try how far mercurials might mitigate the symptoms. Under such treatment, most of the mild, and a very few of the more severe cases recovered: and one very malignant and confluent case in my neighbour Mr. Broom's flock, recovered under the free use of mercury.

Inoculation for this disease is recommended in many parts of Europe; and Mr. Laysterie assures us, with efficacy and success. As soon, therefore, as I was assured of the disease, I made the attempt; but I cannot say with any considerable success. In the first place, I found it difficult to procure matter, and when I had succeeded so far, I again found it very difficult to communicate the disease with any certainty, although I performed the operation with great care, and in every mode I could think of: with a thread, with the scab, and with fresh fluid matter: and where the sheep or lamb took the disease, many died. But I confess, I was by no means certain they had not taken the disease before inoculation, in the natural way. A very few evidently took the disease from the inoculation, and went through it with safety. I vaccinated seven, but I was not sure that one took the cow-pock. Yet the analogy between the clauvau in sheep, and the small pox in man is so great, that if the disease should again appear, I would recommend, and would myself again attempt inoculation.

